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COLOURS AS NON-VERBAL SIGNS  
ON PACKAGES

Helsingfors 2004

## Colours as Non-Verbal Signs on Packages

Key words: Attention, aesthetics, brand, colour, communication, conjoint analysis, decision-making, design, laddering technique, low-involvement purchasing, meaning, means-end-chain, non-verbal sign, package, preference, product, product class, semiotics

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**To Mika, Tommi, Leo, and Oona**



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# 1 INTRODUCTION

## 1.1 SCENARIO

Sandra had trouble sleeping, which caused her a terrible headache. She had an early lecture which she had to attend. She understood that she needed to do something to be able to concentrate on the second lecture. She goes into a pharmacy, which happens to be a self-service store.

Sandra is not a regular customer. Actually, she hardly ever buys medicine. She waves to a pharmacist to assist her, but they are all busy with other customers. Sandra is in a hurry and cannot wait. She finds a shelf with the product class in question, just to observe that there are five different brands of headache medicine. She looks at the packages and three of the brands seem familiar to her, whereas she does not have any image of two of them. The fact that the three brands that she is considering are similar when it comes to product attributes and package size does not make her decision-making any easier. They all state that they cure the same symptoms, and it is really hard for her to decide which product attributes are the most important ones. The list of contents on the packages does not help her much, nor does the price have any impact on her buying decision.

Sandra is not able to make a difference when it comes to the quality and features of the brands; she is in hurry and the clock is ticking and she has to choose something.

What is her buying decision based on? Is it based on a random decision or does she use some information to make her decision? Does something persuade her to choose a certain brand?

## 1.2 IN-STORE SETTING

*‘A pack sits on the shelf at the point of purchase; it represents the culmination of the consumer’s decision-making process.’*  
(Peters 1994:10)

The scenario indicates that the consumer may have knowledge about the product class, but lack knowledge about the brands within it. On the one hand, the in-store setting is today emphasised by claiming that preferences are created in the store (Bettman et al. 1998). On the other hand, it is claimed that the consumer may pre-think about the products she is going to buy, although brand decisions are made in the store (Heath 1999). In fact, it is suggested that up to 70 percent of all brand decisions are made at the point of purchase (Gottheil 2003). The in-store behaviour can be explained by variety seeking, which means that consumers’ choice behaviour is not always habitual (Ratner and Kahn 2002). The in-store behaviour can also be explained by the fact that consumers seem to have difficulties in telling various brands apart, as brands differ only little if at all (Heath 1999).

The discussion above indicates the nature of the decision-making process. It seems fair to state that the process can be rather challenging, particularly when it is estimated that an average consumer spends 20 minutes in a store viewing 20 products per second. This means that the consumer has to make her buying decisions among 24,000 brands (Schreiber 1994). Obviously, the number of brands suggested by the estimation is only a theoretical number, as the consumer in real life only evaluates a small fraction of that amount. However, the challenging nature of the decision-making can further be described by the fact that the consumer faces a store reality where the number of self-service offerings and self-selection processes appears to be growing today (Gershman 1987).

The emphasis on the in-store setting concerns particularly purchases in which the decision-making process is limited. This is so-called low-involvement purchasing, and it means that the consumer puts limited effort into seeking information about brands and into evaluation of competing brands (Assael 1998). One type of low-involvement purchasing is unplanned purchasing, i.e. purchasing that lacks pre-planning. This type of purchasing is caused by such reasons as unexpected needs, possible lack of brand preferences, and time pressure, for example.

## 1.3 RESEARCH AREA

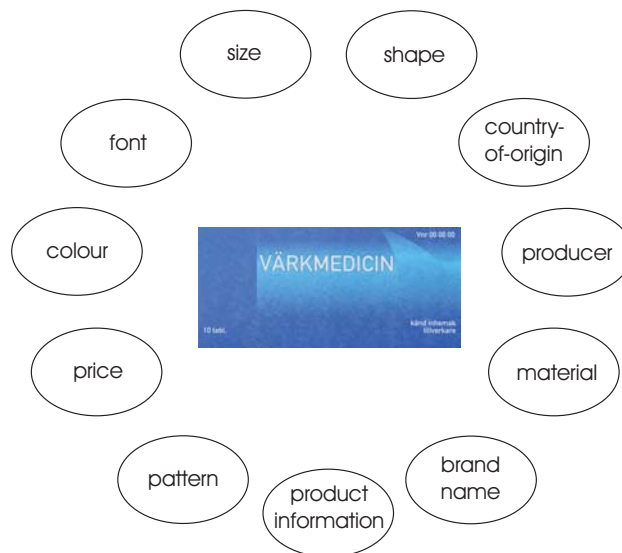
Based on the previous discussion one can assume that the package may have an impact in low-involvement purchasing. Thus, it is easy to agree with statements that in fact postulate that the appearance of the package may have an impact on the decision-making at the point of purchase in these types of purchasing occasions (Garber 1995; Tobolski 1994; Gershman 1987).

However, instead of focusing on the impact of the total appearance of the package in low-involvement purchasing, the study presented in this report is about one of the

elements that compose the total appearance, i.e. colour. Further, the emphasis in the present study is on communication, which means that colours are explored from a communication point of view.

### 1.3.1 Appearance of packages

A package appearance is composed of many elements. These elements can also be referred to as brand or package attributes, although this study treats such elements as signs. Accordingly they can be verbal or non-verbal. Verbal signs are literally expressed on the package, such as brand name, producer, country-of-origin and product information (Pieters and Warlop 1999; DeLozier 1976). Except for price, non-verbal signs are those that traditionally are referred to as aesthetic aspects (Veryzer 1995b) and design elements (Veryzer 1993). Thus, such non-verbal signs can be distinguished as size, shape, material, pattern, font, and colour.



*Figure 1. Signs on the package*

Non-verbal signs are emphasised from a communicative point of view by arguing that up to 90 % of all interpersonal communication is non-verbal (Fromkin and Rodman 1993). Although, the figure refers to another type of communication, it indicates the impact of non-verbal signs. In spite of this, non-verbal signs have not received much attention in scholarly studies within marketing (Gabbott and Hogg 2000; Homer and Gauntt 1992; Houston et al. 1987). However, the impact of non-verbal signs on consumers is acknowledged. It is, among other things, suggested that non-verbal signs attract attention (Finn 1988). In addition, it is implied that they evoke persuasion, which apparently means that they also communicate (Pieters and Warlop 1999; Miniard et al. 1991). In fact, it is claimed that consumers perceive those signs that compose the package appearance, and that those signs are processed as information as well (Pieters and Warlop 1999). Other past research that supports the impact of non-verbal signs on the behaviour of consumers has found that non-verbal signs have an impact on memory (Houston et al. 1987; Childers and Houston 1984). Furthermore, it has been found that non-verbal signs influence attitudes (Babin and Burns 1997; Mitchell 1986).

Colour is one of the non-verbal signs. The impact of colours as a marketplace phenomenon is well acknowledged (Garber et al. 2000a; Grimes and Doole 1998; Gorn et al. 1997; Schoorman and Robben 1997; Gordon et al. 1994; Belizzi and Hite 1992). When it concerns products, it is detected that for example colours, as one of the inevitable signs of the total appearance of products, have an impact on the sales success of a product (Bloch 1995). Today, it is quite obvious that products should not be designed only in order to meet functional needs, but that they should be attractive as well (Veryzer 1995a; Eckman and Wagner 1995; Kotler and Rath 1984). This is one of the reasons design is emphasised as a key marketing element (Veryzer 1995b). However, the value of colours does not only lie in the aesthetics (Oliver 1996), as it is stressed that colours have two other important functions from a marketing point of view. First, it is suggested that colours draw attention to themselves (Grimes and Doole 1998; Gorn et al. 1997; Schoorman and Robben 1997; Gordon et al. 1994; Belizzi and Hite 1992). This function is pointed out by implying that colour is the most essential visual element within marketing (Danger 1987b). This can be explained by the finding according to which colour is the first sign that the consumer notices on a package (Danger 1987a; 1987b). The second function of colours that is emphasised is the role of colours as a means of communication (Garber et al. 2000a; Grimes and Doole 1998; Gorn et al. 1997; Evans et al. 1996; Gordon et al. 1994; Belizzi et al. (1983). Thus, it is claimed that colours have the ability to convey meanings. Belizzi et al. (1983) point out that this issue is essential, particularly when it comes to such marketing phenomena as advertising and packaging.

### 1.3.2 Past research on colours within marketing

Past research on colours with marketing implications has focused on various issues. The studies discussed in the present study are listed in Appendix 1. One of the most studied issues has concerned the use and the impact of colours particularly in advertisements. Colours and advertisements have been investigated, for example, by Kaufman-Scarborough (2001), Gorn et al. (1997), Kirmani (1997) Meyers-Levy and Peracchio (1995), Chattopadhyay et al. (1994)<sup>1</sup>, Greer and Lohtia (1994), Huang (1993), Chamblee and Sandler (1992), Kimle and Fiore (1992), Grønhaug et al. (1991), Lee and Barnes (1990), Hoyer et al. (1986)<sup>2</sup>, Schindler (1986), and Sparkman and Austin (1980).

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<sup>1</sup> The study is in progress, i.e. a thorough description of the empirical study is lacking.

<sup>2</sup> An abstract, i.e. the study is completed and it involves consumer data; however, a thorough description of the empirical study is lacking.



Other colour studies have focused on colours and cultural issues, such as the link between colours and international branding (Grimes and Doole 1998) as well as colour associations and preferences across cultures (Madden et al. 2000; Jacobs et al. 1991). Past research has also focused on colours in a shopping-related context, i.e. how colours affect consumer reactions in retail stores (Babin et al. 2003; Belizzi and Hite 1992; Belizzi et al. 1983). The role of food colours on the perception of, for example, flavour has been investigated as well (Garber et al. 2000b; Peterson 1977), and studies on the effect of background colour on product attitudes can also be found (Middlestadt 1990). Furthermore, the issue of colours with marketing implications has been discussed in published studies without referring to empirical data (Grossman and Wisenblit 1999; Caudill 1986). In addition, studies have dealt with the impact of colours on packages (Garber et al. 2000a; Schoorman and Robben 1997; Plasschaert and Floet 1995<sup>3</sup>, Gordon et al. 1994 and Kojina et al. 1986). Lately, the impact of the colours of websites has gained interest (for example by Gorn et al. 2004; Mandel and Johnson 2002).

The studies mentioned above with an empirical study can be classified into the three following main research areas (Gorn et al. 1997):

1. the use of specific colours
2. the effect of coloured vs. black-and-white advertisements
3. the effect of specific colours

The first area concerns the issue of *the use of specific colours* (Kaufman-Scarborough 2001; Huang 1993; Lee and Barnes 1990; Schindler 1986). The studies in the second research area have investigated *the effect of coloured vs. black-and-white advertisements* (Kirmani 1997; Meyers-Levy and Peracchio 1995; Chamblee and Sandler 1992; Kimle and Fiore 1992; Hoyer et al. 1986; Sparkman and Austin 1980). The third area consists of studies about *the effect of specific colours* (Gorn et al. 2004; Babin et al. 2003; Mandel and Johnson 2002; Garber et al. 2000a; Garber et al. 2000b; Madden et al. 2000; Grimes and Doole 1998; Gorn et al. 1997; Schoorman and Robben 1997; ; Gordon et al. 1994; Greer and Lohtia 1994; Belizzi and Hite 1992; Grønhaug et al. 1991; Jacobs et al. 1991; Middlestadt 1990; Kojina et al. 1986; Belizzi et al. 1983; Peterson 1977).

The findings of the studies in the first research area suggest, to begin with, that colour preferences connected with race are utilised in advertisements in race-oriented magazines (Lee and Barnes 1990). However, they also found that colour preferences connected with gender are not utilised in gender-oriented magazines. The use of colours is supported as it is found that colours have an effect on readability (Schindler 1986). The finding by Schindler (1986) is supported by Kaufman-Scarborough (2001), who focused on colours and readability in advertisements with a special interest in visually disabled consumers. Huang (1993) studied the use of colour in advertising by comparing Taiwanese and US advertising. The study found that similarities as well as dissimilarities exist in the use of colours. The study concludes that the use of colours is influenced by the culture.

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<sup>3</sup> The study refers to consumer data; however, a proper description of the empirical study is lacking.

The studies in the second research area state that colours have a positive impact on perceived brand quality when the advertisement is not repeated often, whereas black and white advertisements have the same impact when the advertisement is repeated often (Kirmani 1997). Also, Meyers-Levy and Peracchio (1995) found that coloured advertisements are justified under certain conditions. They suggest that colours are especially important when the consumer is less motivated to process an advertisement. However, Meyers-Levy and Peracchio (1995) support the use of black and white advertisements when the consumer is motivated to process advertisements. Chumblee and Sandler (1992), Kimle and Fiore (1992), Hoyer et al. (1986), and Sparkman and Austin (1980) support the use of colours in advertisements instead of using only black and white colours in advertisements. For example, Kimle and Fiore (1992) stress that colours attract attention. Chumblee and Sandler (1992), on the other hand, imply that colours have an impact, not only on attracting attention but on evoking interest, and on preferences toward advertisements as well. Further, Sparkman and Austin (1980) found that colours on advertisements had a positive effect on the retail sales of the product.

The studies in the third research area present varying findings that are related to many issues. However, they share the fact that they focus on the effect of specific colours. When it comes to the impact of colours in a cultural context, studies show that colour associations and preferences are in some respect country specific as well as universal (Madden et al. 2000; Grimes and Doole 1998; Jacobs et al. 1991). In addition, Grimes and Doole (1998) postulate that international brands are linked to colours, which means that colours communicate brands. When it comes to colours in a shopping-related context, it is found that colours have an impact on shopping intentions (Babin et al. 2003; Belizzi and Hite 1992). It is also postulated that colours can physically attract a consumer, for example, to go into a store (Belizzi et al. 1983). Furthermore, it is suggested that colours evoke perceptions linked to the environment, such as negative and tense store image (Belizzi et al. 1983). Belizzi and Hite (1992) explain the findings in the previous study by Belizzi et al. (1983) regarding the perceptual impact of colour by stating that colours have an affective impact rather than an arousal effect. Studies on colours and food point out that consumers use colours for identification (Garber et al. 2000b). It is also claimed that colours have an impact on preferences and that colours convey the meanings of the product such as the flavour (Garber et al. 2000b; Peterson 1977). Peterson (1977) also found that food colours are used as a sign for nutritional information. Background colours are implied to have an impact on attitudes, such as on attitudes toward buying the product, for example (Middlestadt 1990). Mandel and Johnson (2002) and Gorn et al. (2004) studied the impact of background colour on websites. Mandel and Johnson (2002) found that background colours on websites had an impact on choice behaviour on the internet. Gorn et al. (2004) on the other hand found that colours that had an impact on feelings of relaxation influenced time perception. Studies on the colours of questionnaires have, in contrast, not found support for the assumption that colours would have an impact on response rates (Greer and Lohtia 1994). The study by Grønhaug et al. (1991), on the other hand, suggests that the use of colours has an impact on the recognition of advertisements, which means that colours are related to the reading of advertisements. This may have economic consequences, i.e. the use of colours may have a positive impact on the effectiveness of advertisements (Grønhaug et al. 1991). Colours are also found to have an impact on feelings, which in turn have an impact on attitudes towards advertisements (Gorn et al.

1997). In fact, Gorn et al. (1997) focused on the levels of value and chroma. They found that the level of value had an impact on the feelings of relaxation and that the level of chroma had an arousal impact. Consequently, these were found to have a favourable impact on liking the advertisements.

When it comes to the impact of colours on packages it has been found that, first of all, consumers use colours on packages for identification of brands (Garber et al. 2000a). Secondly, past research has detected that colours attract consumers' attention (Garber et al. 2000a; Schoorman and Robben 1997). Thirdly, past research has found that colours communicate as colours apparently convey such meanings as brand meanings (Garber et al. 2000a; Gordon et al. 1997). Fourthly, findings stress that colours on packages have an impact on the evaluation of brands (Schoorman and Robben 1997; Gordon et al. 1994). However, it is also found that this function of colours will diminish along with repeated exposure, such as habit (Garber et al. 2000a). Fifthly, past research postulates that the accepted colours on packages may be limited (Kojina et al. 1986), which means that consumers only accept a few colours on a package. Finally, past research implies that colours influence the brand choices of consumers (Gordon et al. 1994).

Indeed, it can be concluded that past research supports the idea that colour is an important design element, and it acknowledges that colour is an essential issue from a marketing point of view as well. Thus, an interesting finding is that despite the studies mentioned above it still appears that there are only a few colour studies with marketing implications (Garber et al. 2000a; Grimes and Doole 1998; Gorn et al. 1997). In addition, only a few of the scholarly studies on colours with marketing implications are published in marketing journals (Grimes and Doole 1998; Gorn et al. 1997). However, despite the scarce number of colour studies in marketing journals, it is evident that past research supports the idea that colour is an essential issue to study. Colours have been found to have an impact on consumers from attracting them into a store, having an impact on their shopping intentions as well on their moods, attracting their attention, communicating to have an impact on their buying decisions. Obviously, past research shows that colours have an impact on the behaviour of consumers.

#### 1.4 ELICITING THE RESEARCH QUESTIONS

The setting discussed so far and the review of past research has elicited some interesting issues to be studied and some questions to be answered. Inspired by those issues, I present three main research questions that I strive to answer in this study. Below, these issues are emphasised and the research questions are defined.

First of all, although the impact of colours is acknowledged in the literature it is fair to claim that empirical studies of design issues, such as colours with marketing implications, are rare. Garber et al. (2000a), Grimes and Doole (1998), Gorn et al. (1997), Bloch (1995), and Belizzi and Hite (1992) support this claim. It is also reasonable to state that the neglected issue of colour concerns the phenomenon of colour in general as well as such issues as colour as a means of communication. Grimes and Doole (1998) and Gorn et al. (1997) support this claim. Further, it can be implied that as most colour studies are concerned with the impact of colours on advertisements, few

studies have focused on the impact of colours on packages. As a result, surprisingly little research addresses the impact of colours on packages on consumer decision-making, not to mention the impact of colours on low-involvement purchasing.

As a consequence, the present study attempts to answer the following question:

*1. Do colours on packages have an impact on decision-making in low-involvement purchasing?*

Secondly, the study is interested in the impact of the context. Although colours have not so far been studied widely within the field of marketing, colours have been studied extensively within the field of psychology (Belizzi and Hite 1992). This means that it can be claimed that the findings concerning past colour research within psychology are applied within the field of marketing, as it appears that these findings are referred to in the marketing literature. This particularly concerns findings on colour preferences and colour associations, on which colour research within psychology has mainly focused (Taft 1997; Sivik 1970). As it appears, many of the studies within psychology lack the notion of context. This can be regarded as a contradictory finding as it is simultaneously postulated that the impact of colours is dependent on the context (Taft 1997; Jacobs et al. 1991). This means, for example, that a consumer may prefer one colour in one context and another colour in another context, the context being, for example, a home or a retail store, furniture or pharmaceutical. Hence, it can be claimed that one of the critical issues in many colour studies is the absence of the context. Taft (1997) supports this claim, and he points out that this concerns particularly colour studies conducted within the field of psychology. In fact, it is even argued that quite a few colour studies consider the importance of the context (Taft 1997; Saito 1983). As a result, an interesting issue concerning the impact of the context can be detected.

As a consequence, this study attempts to investigate if a possible impact of colours varies according to the context. An important notion in the present study is that the product class represents the context. In other words, in this study the interest is in knowing if the impact of colours differs between product classes. Consequently, this leads to the next research question:

*2. If colours have an impact on decision-making in low-involvement purchasing, is that impact of colours related to the product class in question?*

The third issue concerns the product itself, i.e. the core product. Past research claims that there are hardly any empirical studies focusing on the issue of consumer processing of verbal and non-verbal package signs (Underwood and Klein 2002; Homer and Gauntt 1992). Further, it is stressed that few studies have investigated the effect of the processing of verbal and non-verbal signs on the evaluation of the product itself (Homer and Gauntt 1992).

As said, it appears that there are few studies on colours. More closely it can be claimed that there is a scarce number of studies focusing on the impact of such non-verbal signs as package colours. Inspired by these claims and by the claims above pointed out by Homer and Gauntt (1992), this study follows the path set by Underwood and Klein

(2002), Gordon et al. (1994), Rigaux-Bricmont (1981), and McDaniel and Baker (1977), who all focused on a single sign on the package. The study by Underwood and Klein (2002) focused on pictures on packages, Gordon et al. (1994) dealt with the impact of package colours, Rigaux-Bricmont (1981) focused on the impact of brand names, and McDaniel and Baker (1977) studied the impact of package materials. As can be recalled, this study treats pictures, colours, brand names and materials as signs. I have analysed the function of these signs used in the four studies above. The result of that analysis is that I imply that the signs in those studies communicate the brand and the core product itself. This means that the current study postulates that a sign – product relation<sup>4</sup> can be detected in the studies by Underwood and Klein (2002), Gordon et al. (1994), Rigaux-Bricmont (1981), and McDaniel and Baker (1977). Further, it can be postulated that the findings in these studies indicate that the sign – object relation has an impact on the behaviour of consumers. An important notion is that the perspective concerning the sign – product relation is not used in the four studies mentioned above. Thus, they do not treat colours, brand names, and materials as signs, and the product as objects.

The present study focuses on the sign – product relation. However, in addition to only focusing on that relation the present study focuses on understanding and analysing the sign – product relation. In fact, it appears that past research has not explicitly focused on understanding the relation and the impact of that relation by analysing it. This leads to the third research question:

3. *If colour – product relations are detected, how could an analysis of these relations be carried out in order to increase the understanding of the impact of colours on decision-making in low-involvement purchasing?*

## 1.5 AIM OF THE STUDY

This study is about giving insights into the impact of colours on packages on decision-making in low-involvement purchasing. More closely, the study is about understanding the communicative impact of colours on packages in this setting, with the focus on colours as a means of non-verbal signs.

Accordingly, the main aim of this study is to

*explore the communicative role of colour signs on packages from a consumer point of view with emphasis on the impact of colour signs on brand preferences in low-involvement purchase decisions in various product class contexts*

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<sup>4</sup> The relation of sign – product used here originates from the sign – object relation suggested by Morris (1946). This relation is discussed in Chapter 3.

## 1.6 RESEARCH STRATEGY

A study means solving problems (Anderson 1983). Basically a problem arises from the gap between what is known and what is unknown, or from the fact that knowledge cannot be applied to a certain situation (Arndt 1985). Problems are in general solved by seeking knowledge, which is defined as information that relates to ‘*an aspect of reality*’ (Arndt 1985). There are various bases to study an aspect (Arndt 1985) and many ways of seeking knowledge.

Evidently, the phenomenon studied as well as the questions posed and the aim of the study has an impact on how knowledge is sought for. This section aims at clarifying some standpoints concerning knowledge seeking of the present study. This section also explains the process behind the present study.

### 1.6.1 Research approach

Paradigms may be defined as the belief systems that apparently guide a research. Many varieties exist in how scientific paradigms, approaches and perspectives are labelled, and how the literature defines that they are related to each other. For example, Schwandt (2000) defines that three epistemological viewpoints can be located in social inquiry: interpretivism, hermeneutics, and social constructionism. Alvesson and Sköldbberg (2000) say that four methodologies can be located in social inquiry: empirically oriented current (e.g. grounded theory), hermeneutics, critical theory, and postmodernism. Denzin and Lincoln (2000) define that all qualitative research is interpretive, and accordingly research can be located as positivist and postpositivist, constructivist-interpretive, critical, and feminist-poststructural. Lincoln and Guba (2000) define five paradigms, namely positivism, postpositivism, critical theory, constructivism, and participatory. In this classification the interpretive approach of hermeneutics/dialectic is labelled as methodology belonging to the paradigm of constructivism. Tashakkori and Teddlie (1998) consider that four prime paradigms exist in social inquiry: positivism, postpositivism, pragmatics, and constructivism.

The present study follows the acknowledgement that knowledge can be sought in accordance with two main research approaches: the positivist and the interpretivist approaches (Beckmann and Elliott 2000). It can be claimed that the two approaches represent two extreme approaches to conduct consumer research. Positivism has dominated within marketing and consumer research (Hudson and Ozanne 1988). However, Beckmann and Elliott (2000) state that interpretive approaches have gained more attention during the last years.

The two main streams differ in many respects. First, they differ in the beliefs about *ontology*, i.e. regarding how they perceive reality. Positivism assumes that there is one objective reality, which can be studied precisely. The interpretive approach bears a different view on reality. It declares that reality is socially constructed and created by the individuals in the society. This means that multiple realities exist. The meaning of reality is viewed holistically, and it is contextual (Hudson and Ozanne 1988).

Second, the two research approaches differ in *epistemological* assumptions. According to the positivist view objective knowledge can be gained, which means that the researcher and the object to be studied can be separated in order to conduct an objective study (Guba and Lincoln 1994, Hudson and Ozanne 1988). Positivist epistemology searches for causal relationships, and it further declares that generalisations can be made and applied to various phenomena (Burrell and Morgan 1987). The interpretive approach is far more subjective, and it points out the interaction between the researcher and the object. It declares that knowledge is dependent on the context and place.

Due to the diverse assumptions on the ontological and epistemological issues the two approaches also differ regarding the methodological approach. *Methodology* refers to how a phenomenon will be studied, and broadly defined a distinction can be made between taking a quantitative or qualitative approach. Positivist paradigm indicates collecting data, and basically positivistic research means taking a quantitative approach using quantitative techniques (Lincoln and Guba 2000). The interpretivist aims at reconstruction, and it means that data is rather generated (Guba and Lincoln 1994). According to Gummesson (1988) this indicates primarily non-quantitative data, i.e. interpretive research means basically taking a qualitative approach and relying on qualitative techniques. A fundamental difference between these two paradigms is also according to Ozanne and Hudson (1988) that a positivist aims primarily at explaining, while the interpretivist aims at understanding.

The present study is about understanding and exploring a phenomenon in depth, and this has steered the methodological considerations, and the selection of method and techniques. In order to answer the research questions posed and achieve the goals of the study, mixed methodologies were used. Primarily an experimental study was designed, in which both quantitative and qualitative techniques were used to collect data. The quantitative part involved a conjoint task, which provides quantitative evidence. The quantitative part, i.e. the conjoint task was immediately followed by the qualitative part, and in fact the study postulates that they were performed simultaneously. The qualitative data collection was based on interviews, and a laddering technique was applied to perform the interviews. Data was analysed applying both a laddering technique and a semiotics approach. It is essential to point out that the objective of the quantitative part of the study was to form a basis for the qualitative part of the study.

Because the assumptions on reality is linked to the view on how knowledge can be gained, the epistemological and ontological viewpoints of this study must be declared as well. It seems essential to point out that despite the two diverse methodological approaches, the study is shaped according to the specific belief I acknowledge about the world. In other words, this study is based on my assumption that reality is a social construction. I consider that reality is something subjective, and, therefore, based on subjective values and interpretations. This means that my reality does not necessarily coincide with yours. The same concerns the interpretations made on various phenomena. Thus, my interpretation of a specific sign is hardly identical with yours. However, if we share many similar values, the interpretation of a specific sign may result in similar meanings. An essential notion of this study is that the study implies that reality is expressed as signs, verbal and non-verbal. Tebelius (1987), who stresses that material signs can also be interpreted, supports this. This study focuses on one single

sign on the package. However, it is not implied that the consumer behaviour is based solely on that particular sign. In fact, the package is regarded as a gestalt, which means that it is the package as a whole that matters. However, it may be assumed that some signs may in some cases have a greater impact on the choice process, and thus it may be possible to make some generalisations regarding some specific signs. This study does not suggest that everything should be regarded as signs, or interpreted as such. It is hardly even meaningful. However, I find that many phenomena can be regarded as signs, although as said, it must be realised that the settings for the signs and the interpretations varies.

Due to the use of mixed methodologies, one could define that the present study is located in the pragmatics view on conducting research, as defined by Tashakkori and Teddlie (1998). This paradigm acknowledges that quantitative and qualitative methodologies are combined in order to answer research question. This paradigm also acknowledges that an external reality exists, but that the way in how it is explained may vary. Further, it acknowledges that knowledge gained can be objective as well as subjective. However, the present study acknowledges primarily the ontological assumption that reality takes form as multiple mental constructions, and the epistemological subjective viewpoint. Thus, based on the discussion above including the specific characteristics of a conjoint analysis the present study should rather be located in the interpretive approach of conducting consumer research.

#### 1.6.2 Positioning the perspective on communication

The objective of a colour study can vary. This study is about colours from a communicative point of view and, therefore, the view of communication is clarified.

There are many ways and various perspectives to study communication. Krone et al. (1987) suggest that communication can be studied from four different perspectives (see Appendix 4): mechanistic, system-interaction, psychological, and interpretive-symbolic. They explain the different perspectives by defining the mechanistic perspective as message transmission from person A to person B, in which the focus is on the channel that links the persons. In a system-interaction perspective the focus is on external behaviour. This means that instead of concentrating on, for example, conceptual interpretations of events or activities, the focus is on finding patterns of behaviour. In the psychological perspective the characteristics of the persons are in focus. This indicates that the interest is in how the characteristics of the persons involved affect the communication. The last perspective is the interpretive-symbolic perspective of communication, which is where this study can be located.

In short, a basic ontological assumption within the *interpretive-symbolic perspective* is that everybody creates their own social reality, and the focus is on finding shared meanings. The interpretive-symbolic perspective, together with the psychological perspective, differs from the two first ones in that the focus is on the receiver of the communication. Further, the interpretive-symbolic perspective points out the interaction between the researcher and the receiver (Guba and Lincoln 1994; Hudson and Ozanne 1988).



In this study a *semiotics approach* was taken to understanding colours as a means of communication. It can be postulated that semiotics is closely related to the interpretive-symbolic perspective of communication. According to Fiske (1990) two schools of communication exist. Semiotics is one of the schools of communication, whereas the other one is the process school. The process school is the more traditional approach to studying communication, and it has similarities with the mechanistic perspective, as it focuses on communication as a process. The two-way communication model is one of the basic models within this functionalist approach and, accordingly, communication stands for the '*transmission of messages*' (Duncan and Moriarty 1998; Fiske 1990). Basically, this is the traditional way to regard communication within the discipline of marketing as well.

Semiotics, on the other hand, indicates an interpretive perspective of communication, according to which communication is the '*production and exchange of meanings*' (Duncan and Moriarty 1998; Fiske 1990). It is a multidisciplinary approach that is applied in such fields as theatre, poetry, management (e.g. Aaltonen 1997, Gahmberg 1986), mathematics (Sebeok 1997; 1999), literature, and music (e.g. Tarasti 1990). Semiotics has been applied in marketing research since the 1970s (Mick 1986). As a consequence, the acknowledgement of its benefits within the field is well established (Mick et al. 1999; Johansson 1990; Cleveland 1986). It is pointed out that semiotics is an approach that can be used to increase the understanding of the communication process, and to make communication more effective (Johansson 1990). Although it has been applied to various other phenomena particularly during the last years, it is claimed that most of past research applying a semiotic approach has been conducted within advertising (Mick et al. 1999). This means that many marketing phenomena have not been examined from the semiotic perspective. Mick et al. (1999) emphasise that the package is one of them.

Semiotics focuses on signs, and a basic assumption within the approach is that everything communicates, whether the sign that communicates is verbal or non-verbal (Mick et al. 1999; Duncan and Moriarty 1998). Semiotics provides various concepts for understanding signs, and it is argued that these concepts can be applied to the understanding of the signs of many marketplace phenomena as well.

A fundamental assumption of the current study is that the phenomenon of colour can be regarded as a sign. Consequently, this goes in line with the emphasis of this study, which is to apply the science that focuses on signs, namely the semiotic approach. In the literature semiotics is referred to as a methodological issue (Beckmann and Elliott 2000), a method (Berger 2000), and as a theory (Nöth 1990). Despite the definition it can be argued that it is involved in how to interpret signs (Berger 2000), and that it is the study of messages and the systems of underlying signs (Sebeok 1986). Although it can be implied that the semiotic approach steers the methodological perspective of communication in the present study, this study refers to it basically as an approach that offers concepts to the understanding of various signs from a communicative point of view. In fact, in the present study it is assumed that using the semiotic approach could increase the understanding of the impact of colours as a means of communication. In other words, the semiotics is applied to analyse colour – product relations. It must be

pointed out that using the semiotic approach means that in order to gain an understanding, interpretation of data is required.

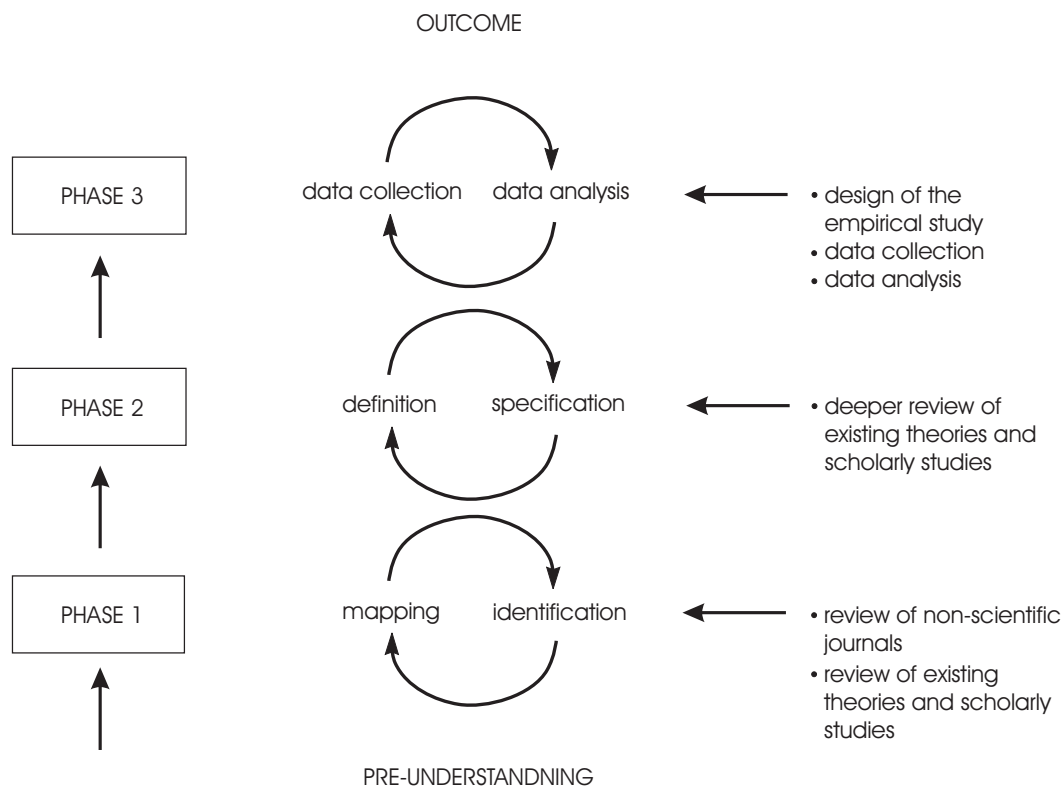
In this study communication is basically looked upon as process. This means that marketing communication is reviewed through traditional lenses according to the two-way communication model. However, the study also takes into account the fact that communication means production and exchange of meanings according to the interpretive point of view. To conclude, in the present study it is assumed that semiotics could increase the understanding not only of the impact of a particular sign, but of the production and exchange of meanings, which occur within the marketing communication process.

### 1.6.3 The abductive research process behind the study

Research originates from diverse starting points. Gummesson (2000) states that the starting point of research indicates whether a research is defined as deductive or inductive research. Basically it can be claimed that the present study was grounded in theory after which the phenomenon of the study was observed empirically. This means that the study can be defined as initiating from a deductive perspective.

However, Gummesson (2000) states further that all research becomes an iteration between deductive and inductive reasoning, and consequently, all research is abductive after the initial phases. So did this study. This means that I went, as Dubois and Gadde (2002) express it, 'back and forth' between theory and empirical observations. In other words, abductive research indicates an integrated approach where the various phases of a research process are not linear, but rather intertwined. Thus, although the research behind the study is reported on as a process, it can be claimed that the various phases of this study were intertwined aiming at understanding and exploring a phenomenon in depth, which in this case was colour in a given context.

Basically, the research process behind the current study can be divided into three phases. The process is illustrated in the figure below.



*Figure 2. The research process*  
(Adapted from Gummesson 2000)

The first phase was a sort of a mapping of the research area, which was selected first. This phase meant a preliminary literature review. It can be stressed that the result of this phase was a preliminary understanding of the research area. This phase also resulted in the identification of interesting issues to be studied, i.e. research problems.

In the second phase the research area and the research problems were specified. It meant a further review of the existing theories and previous research. This phase resulted in a deeper understanding of the research area and a definition of the research questions.

The third phase included the empirical part of the study. This phase involved the design of the empirical study, data collection as well as data analysis.

### Pre-understanding

The interpretive approach means that a study is subjective in the sense that the researcher has an impact on the study. For example, the researchers own experiences may influence interpretations (McQuarrie and Mick 1992). Therefore, it is stressed that a pre-understanding often influences an interpretive study. According to Gummesson (2000) pre-understanding refers to insights of a specific research problem. For example, it is based on personal experiences and knowledge, textbooks and earlier research, and other secondary data concerning the problem.

The preliminary choice of the research area in this study was based on my personal interest in semiotics. The pre-understanding of the phenomenon of the study and the interest in the interpretive approach has its origin in my master's thesis, in which I applied a semiotic approach. On the other hand, the final decision to study colours and packages were based on the findings made during the preliminary literature review made in Phase 1 of the research process.

### Phase 1

As said, the present study started in deduction, i.e. the initial step in the research process was a preliminary literature review. This step included an exploration on how semiotics had been used and how it has been presented within the field of marketing. A common viewpoint appeared to be that marketing communication is most often connected with advertising. This conclusion was also drawn when textbooks were reviewed. Gradually, I could conclude that studies on marketing communication and studies applying the semiotic approach are most often in an advertising context. I also concluded that few studies apply the semiotic approach. A further finding was that it was claimed that the role of advertisements is decreasing. Instead, the package as a means of communication was emphasised. This was often stressed in such non-scientific journals as *Marketing*<sup>5</sup>, *Marketing News*<sup>6</sup>, and equivalent magazines in Finnish, such as *Pakkaus*<sup>7</sup> and *Osuustoimintalehti*<sup>8,9</sup>. Nevertheless, support for the claim was also found in scholarly studies, such as Garber et al. (2000a), Garber (1995), and Gordon et al. (1994). At the same time it appeared that scholarly studies on these issues were few.

Semiotics focuses on signs. Accordingly, the various signs and the appearance of packages emerged as an interesting phenomenon to be studied. According to DeLozier (1976), the package consists of various design elements, such as shape, colour, material, size, price, and, for example, brand name. This study does not claim that a buying or a consumption decision is solely based on *one* sign. However, an interesting finding in the literature was that the communicative impact of colours in particular was emphasised. An additional discovery was that scholarly studies on the colours within marketing and particularly marketing communication are few. For instance, Garber et al. (2000a), Grimes and Doole (1998), Gorn et al. (1997), Belizzi and Hite (1992), and Belizzi et al. (1983) support this.

Gradually, I acknowledged that colours and packages as a means of communication, and semiotics were emphasised in the literature. However, I also found that there are few scholarly studies on colours and packages, and that few studies apply the semiotic approach within the field of marketing. It seemed interesting to further study the literature, and to discover how the two phenomena and the semiotic approach are noted in the literature.

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<sup>5</sup> for instance, Fletcher (1995)

<sup>6</sup> for instance, Shermach (1996); Erickson (1995)

<sup>7</sup> for instance, Leppänen (1992)

<sup>8</sup> for instance, Rantanen (1992)

<sup>9</sup> A notion is that the issue is still emphasised in the magazines today (e.g. Isoline and Macomber 2002)

## Phase 2

The second phase in the research process was a further review of the literature<sup>10</sup> concerning colours, packages and semiotics. According to Cooper (1989) two types of literature reviews exist. The first one is called the *integrative research review*. This type of review aims at presenting the state of art, at finding possible gaps in the field of study, and at drawing conclusions. This means, for example, that a study may integrate previous studies by reanalysing empirical data. According to Glass et al. (1981), integrative review is also called meta-analysis, secondary analysis, and meta-evaluation. Hakim (1987) specifies that meta-analysis and secondary analysis are most commonly based on quantitative data, and special techniques can be found to conduct these types of studies. The second type of literature review is a pure *theoretical review*. In brief, this type of review aims at presenting how a phenomenon is explained by existing theories and to comparing them. Reviews can be conducted in many ways. Hakim (1987:18) specifies that differences can be found in '*emphasis, style and presentation*'. Although a distinction can be made between the two types, Cooper (1989) points out that a study that is based on existing literature is often a combination of integrative research review and theoretical review.

It can be maintained that this study is a combination of the two types of reviews discussed above. Hence, this study describes existing theories. However, it also aims at presenting the state of art, and at drawing conclusions by referring to previous studies and theories.

The reviews on previous studies on packages, colours and semiotics are based on the fact that this study is from a marketing point of view. Thus, studies published in marketing journals and those with marketing implications have been emphasised. The theoretical framework is presented in Chapter 2, and the approach of semiotics is discussed in Chapter 3.

## Phase 3

The third phase involved the empirical study. This phase included the design of the empirical study, data collection, as well as analysis of the data. The present study is an exploratory study aiming at in depth understanding a phenomenon, i.e. colour in a given context. This particular nature of the study has steered some aspects of the study. To begin with, the explorative nature of this study has had consequences on the sample size. Basically, this means that the size of the sample has not been crucial. Instead, it is pointed out that the study aims at testing whether the empirical design of the study is able to produce plausible answers to the research questions. In addition, it must be stressed that due to the size of the sample and the sampling procedure used, the findings cannot be generalised.

A basic notion concerning the empirical setting of this study is that it focused on the healthcare industry. In addition, the empirical study was based on an experimental design, which means that it involved hypothetical packages that were designed explicitly for this study. Basically it was assumed that an experimental design may

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<sup>10</sup> A discussion of how the literature review was performed is found in Kauppinen (2001)

provide information in order to be able to answer the research questions posed and to achieve the aim of the study. The empirical setting and the empirical design of the study are presented in Chapter 4.

The study presented in this report has aimed at answering research questions that were based on diverse methodological considerations. In other words, empirically the study encompasses two parts: a quantitative and a qualitative part. It can be stressed that the objective of the quantitative part was to form a basis for the qualitative part.

Three research questions were posed. The first two research questions were answered by using a quantitative technique. It involved an experimental design in the form of a conjoint analysis. This part aimed at answering the questions whether colours have an impact on decision-making, and if a possible impact is related to the product class. In order to answer the two questions two product classes within the healthcare industry were investigated, i.e. painkillers and medicine against sore throats. The selection of these two product classes is discussed in Chapter 4.

The last research question aimed at detecting how an analysis could be carried out in order to analyse and understand the impact of colours. To fulfil this task a qualitative approach was taken. This means that interviews were performed, and a laddering interview technique was applied.

The quantitative study and the qualitative study were done simultaneously. Issues related to the data collection of the final study are presented in Chapter 5, i.e. the chapter discusses the final data collection procedures.

Although all data was collected simultaneously, the data was processed in various phases. This means that findings were achieved in various phases as well. To begin with, the data based on the quantitative approach was processed and findings of that phase are reported on. Thereafter, qualitative data was processed. In fact, this part of the study includes processing of data in three different phases. First, data was reduced into themes. Secondly, a laddering procedure was applied to elicit findings within the themes. Thirdly, the laddering findings were analysed further, and thus the semiotic approach was used to penetrate further into the laddering findings.

## 1.7 STRUCTURE OF THE STUDY

The *first chapter* of the study aims at positioning the study, to begin with, by giving an overview of the setting within which the study aims at contributing. This discussion is followed by clarifying the issues to be studied and by asking questions to be answered by the study.

It can be stressed that Phase 1 of the study, which was based a preliminary review in the literature, resulted in identifying interesting issues to be studied further. These issues can be referred to as research problems. Basically, the research questions posed were based on the research problems identified in the preliminary literature review. In addition, the first chapter includes a methodological discussion concerning

communication, because the current study focuses on colours as a means of communication.

The *second chapter* gives an overview of the theoretical foundation on which this study is based. The chapter begins by examining the choice process of the consumer at the store level. The examination is followed by a discussion of the role of packages at the point of purchase. The chapter also defines the concept of marketing communication, and it gives an overview of how marketing communication is traditionally maintained within the literature. A brief discussion is also given to how non-verbal signs are addressed within marketing communication studies. That discussion is followed by an examination of the phenomenon of colour as a design element or as a non-verbal sign. The emphasis is on exploring colours as a means of communication.

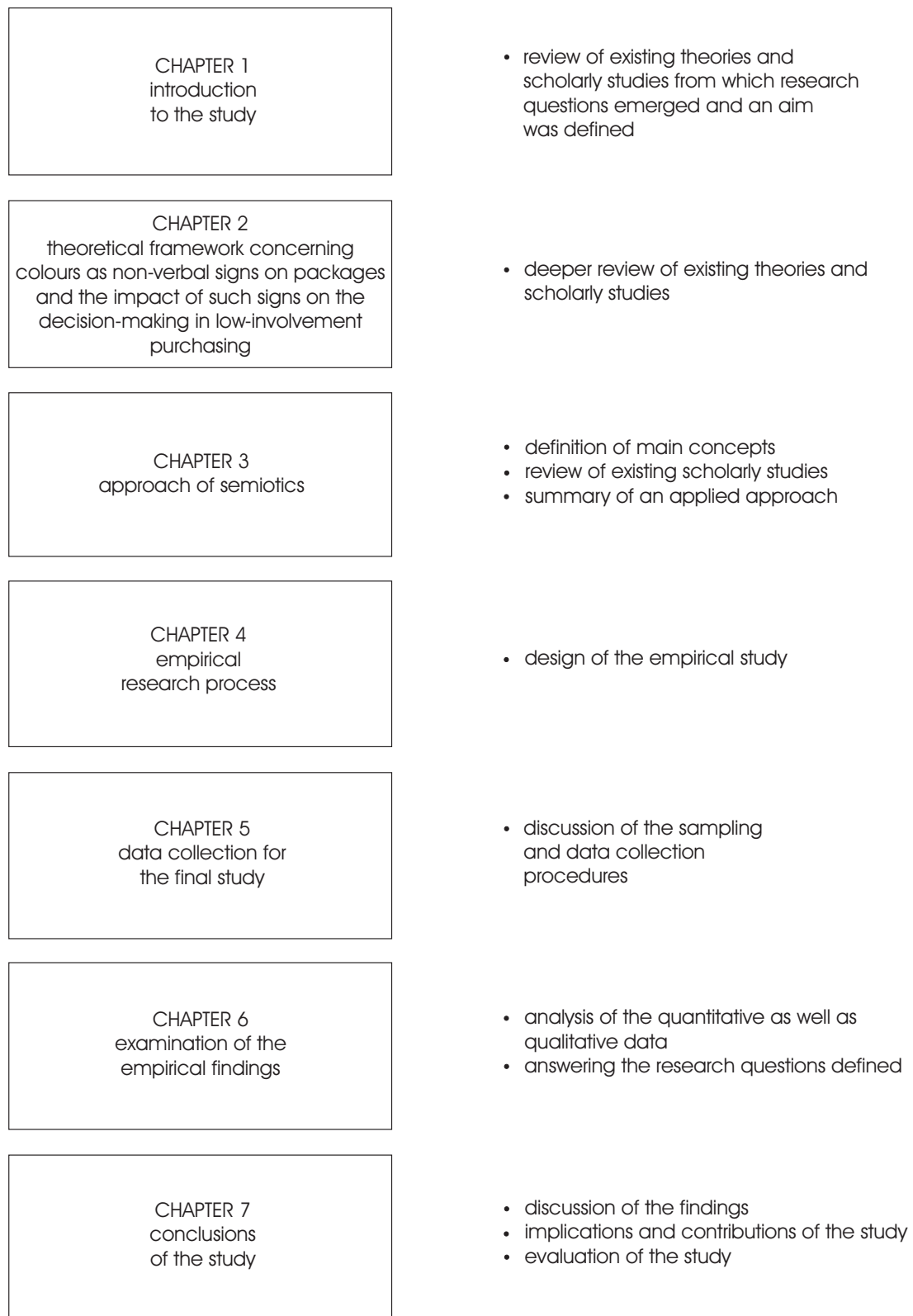
The seed for this study is the interest in viewing communication through an interpretive approach, i.e. the approach of semiotics. The *third chapter* begins by discussing semiotics in general. The aim is to define the fundamental concepts which are suggested to enhance the understanding of marketing communication through non-verbal signs. This discussion is followed by an exploration on how the approach has been applied by some studies on packages and other design issues. The chapter concludes in giving a summary on how the approach is applied in this study.

The *fourth chapter* concerns the research design. This means that the various decisions made during the process in order to be able to answer the research questions are discussed. This chapter explains and motivates the decisions made on the mentioned issues.

The *fifth chapter* describes how the study was implemented. In other words, practical issues are discussed concerning the sampling procedure as well as the procedures used in the data collection.

The *sixth chapter* examines the findings from the empirical study. Thus, data is analysed and results are drawn.

Finally, the study is concluded in the *seventh chapter*. The final chapter summarises the study, and it aims at building a bridge between the theoretical framework and the empirical findings of the study. The chapter also aims to introduce concepts provided by semiotics into a marketing context, and to make a suggestion on how the understanding of the communication process and non-verbal signs can be enhanced.



*Figure 3. Structure of the study*



## 2 THEORETICAL FRAMEWORK

The starting point of this study is the scenario in which a consumer goes into a store and to a shelf displaying a product class consisting of various competing brands.

The purpose of this chapter is to shed some light on the role of the package and the impact of its appearance in our scenario. In order to accomplish the purpose the choice process of the consumer is examined at first. The focus is on a process in which the decision-making is limited. Second, the package as a marketing phenomenon is discussed. This discussion also includes a definition of marketing communication. Third, some issues concerning non-verbal signs are discussed, and the chapter ends with an examination of colours as non-verbal signs.

### 2.1 THE DECISION-MAKING PROCESS IN STORE

This section describes the decision-making process of the consumer at the point of purchase. The scenario in the beginning of this study is brought into mind as the decision-making process is exemplified by a simple analysis of Sandra's choice process at the pharmacy.

A basic notion in the following discussion is that there are different types of choice processes and decision situations. The different types of choice processes can, for example, be differentiated according to the level of involvement and complexity of the decision-making process (Assael 1998) or on the importance of the task (Bettman et al. 1991). The last notion means that the search for information increases as the importance of the task increases.

	HIGH-INVOLVEMENT	LOW-INVOLVEMENT
DECISION-MAKING	Decision process <ul style="list-style-type: none"> <li>• Complex decision-making</li> </ul>	Decision process <ul style="list-style-type: none"> <li>• Limited decision-making</li> </ul>
HABIT	Decision process <ul style="list-style-type: none"> <li>• Brand loyalty</li> </ul>	Decision process <ul style="list-style-type: none"> <li>• Inertia</li> </ul>

*Figure 4. Four types of consumer choice processes*  
(Assael 1998:149)

The figure suggests that consumer choice processes can be habitual, and based on such habits as brand loyalty or inertia. It has been stressed that a large number of choices are, in fact, based on habitual behaviour (Schreiber 1994). However, choice processes may also be based on decision-making, and it is well acknowledged that a decision-making process consists of various stages (Garber et al. 2000a). It is postulated that two types of decision-making processes exist, i.e. complex or limited. A complex decision-making process means that information search may have begun some time before the actual choice. This indicates that the consumer evaluates and compares different brands and

their features, for example in order to make a choice. However, scholarly studies show that consumers tend to seek for variety as well (Kahn 1998; Trijp et al. 1996), and, as in the case of this study, it means that choices are also made at the point of purchase. This type of process is referred to as a limited decision-making process. This means that decision-making takes place, but the process to make a choice lasts a short time. As pointed out, this study focuses on a process in which the decision-making is limited. This process indicates that the involvement of the consumers regarding, for example, information seeking and brand evaluation is low.

### 2.1.1 The stage of consideration

According to the perspective of buying behaviour, a choice process is based on the fact that a consumer has a need (Solomon 1986). In the case of Sandra and her headache, she is facing an unpredictable problem, which evidently needs immediate action. According to Hedvall (1994), a minor illness, such as a headache, means that the consumer has to make a decision on whether she wants to take action to cure the illness or not. Assuming that she wants to take action to cure the problem and faces the fact that she must attend a pharmacy, it is also reasonable to assume that she knows the particular product class that cures her illness. This type of behaviour characterises unplanned purchasing behaviour. In other words, one characteristic of unplanned purchasing is that it may be impulsive. Another characteristic is that the consumer may have knowledge about the product class. However, she may not have decided upon the specific brand she will buy (Assael 1998). In fact, she may not even be aware of the various brands in the product class. Thus, in this study the unplanned purchasing refers to a situation where the consumer faces an unpredictable problem, such as headache. It means basically that the need to make a purchase is unplanned. Further, unplanned purchasing refers to a decision-making where the brand choice is made at store, because the consumer may not have a brand preference. It means basically that the brand choice is unplanned. As pointed out previously, the in-store setting is emphasised in such low-involvement purchasing. As it appears, such purchasing means that the consumer may pre-think about the products she will buy (Heath 1999), whereas preferences (Bettman et al. 1998) and brand decisions (Heath 1999) are made in store. This type of behaviour is further explained by the suggestions that consumers may seek for variety (Ratner and Kahn 2002) as well as by the fact that consumers have difficulties in telling various brands apart, as they differ from each other only little if at all (Heath 1999). Evidently, consumers may also make their decisions in store as it is possible that, for example, the preferred brand is not accessible, as it is out of stock.

As Sandra looks at the shelf displaying painkillers she creates a consideration set, which consists of those brands she might choose from. Nedungadi (1990:264) defines the consideration set as '*the set of brands brought to mind on a particular choice occasion*'<sup>11</sup>. Today it is recognised that the consideration set is not static. On the contrary, it is dynamic and can vary (Nedungadi 1990). Hutchinson et al. (1994) specify that the consideration set might change over time and across purchase occasions.

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<sup>11</sup> According to Nedungadi (1990) the consideration set, choice set, and evoked set are synonymous concepts, but the two latter ones have static connotations.

As can be recalled, Sandra aims at choosing among five brands, which compose her consideration set at this purchase occasion. According to Nedungadi (1990), there are few studies on how a consideration set is actually formed. However, some important notions can be pointed out. To begin with, it must be noted that a consideration set is based on the consumer's tendency to categorise (Ratneshwar et al. 1996). The concept of category is explained as being closely linked to the concepts of similarity and typicality (Ratneshwar and Shocker 1991). Veryzer and Hutchinson (1998) affirm this notion. They state that consumers favour typicality, with the exception of, for example, variety seekers, who are claimed to primarily prefer novelty. Garber et al. (2000a) contend that this particularly concerns competitive product classes, such as cereals. Grossman and Wisenblit (1999), who refer to associative learning, support that consumers prefer similarity. They postulate that similarity can be conveyed through such signs as colours. In fact, Grossman and Wisenblit (1999) even claim that consumers associate product classes with colours.

A further important notion is that the consideration set is not composed of all the accessible brands in a product class. On the contrary, the set usually consists of only a few alternatives (Nedungadi 1990). This finding is linked to the fact that the consumer has limited capacities to process information (Bettman et al. 1991).

As said, it is claimed that the formation of the consideration set is not fully understood. However, past research claims to have detected some reasons that have an impact on the composition of the consideration set. Thus, consideration is explained by such reasons as previous consumption (Johnson and Lehmann 1997), advertising exposure (Shapiro et al. 1997) and accessibility (Nedungadi 1990). Obviously, these findings support the notion that memory plays a role in the formation of the consideration set (Ratneshwar et al. 1996; Hutchinson et al. 1994; Nedungadi 1990). The notion of memory is in line with the finding that the consumer may, in fact, have a consideration set in her mind before the point of purchase, for example, even before she enters a store (Hutchinson et al. 1994). For instance, the consumer may have a buying list, which constitutes her consideration set for that particular purchase.

### 2.1.2 The stage of choice

After the consumer has composed a consideration set she evaluates the brands in order to make a choice. Consumers use information to evaluate the alternatives in the set and their attributes (Korgaonkar et al. 1997; Rao and Monroe 1988). According to Mantel and Kardes (1999), consumers have several ways to process information in order to evaluate alternatives and to finally make a choice. Mantel and Kardes (1999) argue that one of the most fundamental strategies is the distinction between memory-based and stimulus-based information processing.

The strategy mentioned above can be found in Lynch et al. (1988), who state that brand choice is based on memory, stimulus or a mixture of these. In memory-based choices information about the brands is recalled from memory. Stimulus-based choices indicate that the evaluation of brands and product attributes is based on observable attributes or external descriptions. This means that the evaluation is based on the information that is

present at the point of purchase, such as on the package. Mixed choice is based on both memory and on observable information (see e.g., Mantel and Kardes 1999; Alba et al. 1992).

Past choice research has mainly focused on stimulus-based choice tasks (Lynch et al. 1988), whereas the impact of memory has only lately been emphasised (Bettman et al. 1991). This means that the impact of memory is emphasised not only when a consideration set is formed, but also when it comes to making a choice. This means that it has an impact on the information search as well as on the decision-making process (Wedel et al. 1998; Hutchinson et al. 1994).

According to Wedel et al. (1998), the information that consumers evaluate means abstract and concrete attributes<sup>12</sup>. Wedel et al. (1998) define abstract attributes by stating that abstract product attributes are those stored in memory. They are created through previous purchases and information, advertising exposure (Alba and Hutchinson 1987), word of mouth communication and so on. Concrete attributes are found at the point of purchase, and they can be exemplified by size and prize. According to Wedel et al. (1998) abstract attributes are used in brand-positioning strategies, whereas concrete attributes are used in new product design. Basically, the evaluation of the abstract and concrete attribute information leads to attitudes upon which buying decisions (see Petty et al. 1991) and choices (Garbarino and Edell 1997) are based.

Obviously, many other issues influence a choice process as well. Familiarity is one of them. Studies show that familiarity has an impact on how information is processed (Wedel et al. 1998). Wedel et al. (1998) define familiarity by stating that when the consumer is familiar with the brand, she has more abstract information stored in her memory than when the consumer is less familiar with the brand. This means that when the consumer is less familiar with the brand, she has less information on product attributes stored in memory (Rao and Monroe 1988). As a result, the consumer evaluates information which probably is based on concrete attributes. Additionally, the evaluation of the brands is most likely stimulus-based. However, it is also stated that concrete attributes grow in importance when the consumer is very familiar with the brand (Wedel et al. 1998). Further, Coupey et al. (1998) argue that familiarity with the product class means that the consumer knows which attributes are the most important, although brand preference is lacking.

In addition to the information-processing approach to study the choice process of the consumer, other approaches exist as well. For example, the rational approach assumes that the consumer intentionally chooses the product that maximises the utility (see, for example, Bettman et al. 1998; Wedel et al. 1998). However, Homer and Gauntt (1992) argue that when the purchasing occasion is characterised by time pressure the consumer may not be so rational (see also Park et al. 1989). This refers to occasions when the consumer devotes only a short period of time to processing information. As postulated, the concrete attributes, such as the appearance of the package, may have an impact on

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<sup>12</sup> Other distinctions exist as well, such as the distinction between extrinsic and intrinsic cues. The package is one extrinsic cue (as also price and brand name), which means that it is related to the product but not part of the core product itself, in contrast to intrinsic cues (e.g. Underwood and Klein 2002).

the decision-making process at the point of purchase on such occasions (Garber 1995; Tobolski 1994; Gershman 1987).

Since many issues influence a decision-making process as well as a choice process, these processes can be rather challenging. As a consequence, the consumer aims at simplifying the processes. Thus, it is postulated that the consumer uses strategies, also called rules of thumb. Many rules of thumb are suggested in research, and one of them is the habitual heuristic. In accordance with the habitual choice process discussed previously, this heuristic suggests that the decision process and choice process of the consumer may be based on brand loyalty or inertia (Bettman et al. 1998; Bettman et al. 1991). In accordance with the suggestion that consideration sets may vary, it is implied that the various rules of thumb may vary over time and across occasions (Bettman et al. 1991).

Based on the previous discussion regarding the decision-making process in store, the following conclusion can be stated.

Stimulus-based information and observable, concrete attributes have an impact on unplanned choices, which are made under time pressure and that involve product classes composed of brands that substitute each

## 2.2 THE IMPACT OF THE PACKAGE AT THE POINT OF PURCHASE

According to the focus of this study, the study postulates that the package is one of the phenomena that the consumer uses as stimulus-based information. In addition, it is suggested that the consumer is influenced by observable and concrete attributes that are found on the package. In line with these assumptions the package as a marketplace phenomenon is discussed next.

The section starts by examining past research on packaging. In particular, those previous studies are emphasised that focus on the impact of the package on the choice process in an in-store setting, i.e. at the point of purchase. The review is followed by a more thorough examination of the two functions of packages that are emphasised within marketing, i.e. packages as a means to attract the attention of consumers as well as packages as a means of communication. The focus is on the latter function, i.e. on packages as a means of communication.

### 2.2.1 Past research on packages

Studies on packages with marketing implications have focused on various issues. The studies are listed in Appendix 2.

To begin with studies have focused on ethical issues (Bone and Corey 2000), ecological issues (Polonsky et al. 1998; Bech-Larsen 1996) and methodological issues (Plasschaert and Floet 1995). These studies are concerned with the ethics in the marketplace such as

the impact of various marketing activities on stakeholders, and found, for example, that ethically interested consumers are more ethically sensitive than brand managers and packaging professionals (Bone and Corey 2000). They have studied the environmental information on packages and found that environmental claims on packages are misleading (Polonsky et al. 1998). Further, an investigation of the relation between consumption and environmental issues show that the environmental characteristics of packages influence the consumers' decision-making only slightly (Bech-Larsen 1996). Plasschaert and Floet (1995) suggest a new methodology to research colours on packages, i.e. it combines semiotics and a computer image manipulation.

The issue of packages and the impact of the design of packages are discussed by Underwood (1999), Underwood and Ozanne (1998), Connolly and Davison (1996), Klapisch (1995), and Hall (1993). These five studies share the fact that they discuss the design of packages from a managerial point of view. Underwood (1999) discusses the creation of brand identity through packaging. Underwood and Ozanne (1998) suggest a framework in order to design effective communication through packages. According to Connolly and Davison (1996) brand design, including for example colours and shape, is expressed through packages. They claim that many brands fail in using them and, consequently, many brands do not stand out. In other words, Connolly and Davison (1996) claim that this means that many brand designs fail to attract consumers. In addition to having normative purposes the three previous mentioned studies share a limited empirical discussion. Studies by Klapisch (1995) and Hall (1993) also have normative purposes but they lack consumer data. Klapisch (1995) applies semiotics and examines how meanings are expressed on packages of daily commodities whereas Hall (1993) discusses how packaging design can add value to brands. Other studies that lack consumer data are the studies by Sorvali (2000) and Yavas and Kaynak (1981), who discuss packages as a means of communication. Also, the early studies by Gardner (1967), Hayhurst (1965), and Lincoln (1965) emphasise the function of packages from a communicative point of view. These three studies have normative purposes and they also leave out the consumer.

The present study is interested in the impact of packages from a consumer point of view, and thus the studies involving consumers' are emphasised. Studies with consumer data have investigated such issues as packages as a means of attracting the attention of consumers (Underwood et al. 2001; Garber et al. 2000a; Goldberg et al. 1999; Schoorman and Robben 1997). Packages as a means of communication as well as a means of communicating brand and product meaning have been studied by Underwood and Klein (2002), Garber et al. (2000a), Schoorman and Robben (1997), Gordon et al. (1994), Homer and Gauntt (1992), Rigaux-Bricmont (1981), and McDaniel and Baker (1977).

The effect of package size on consumption behaviour has been studied by Wansink (1996). The impact of preferences has been studied as well. On the one hand, consumers' preferences concerning sizes and prices have been in focus (Granger and Billson 1972). On the other hand, studies have also investigated consumer preferences regarding such package signs as colours and patterns (Kojima et al. 1986). In addition to focusing on attention, Garber et al. (2000a) studied the impact of the package on consideration and choice, whereas Schoorman and Robben (1997) focused not only on

attention but on the impact of the appearance of the package on product categorization and evaluation. Underwood and Klein (2002) on the other hand studied the impact of pictures on attitudes towards the package itself. They also studied the effect of pictures on beliefs about the brand and evaluation of the brand. Further, Rettie and Brewer (2000) investigated the impact of verbal and non-verbal signs on recall, whereas Homer and Gauntt (1992) studied the impact of verbal and non-verbal signs on attitudes concerning brands and package as well as purchase intentions.

Next the findings in the studies mentioned above are discussed. The discussion deals with the findings that are related to the current study, i.e. the findings that contribute to the understanding of the impact of packages on consumer behaviour and more closely at the point of purchase.

To begin with, it is found that the appearance of the package has an impact on consumers concerning the *identification* of brands (Garber et al. 2000a). For example, consumers identify more easily those brands whose new packages are designed with colours that are similar to the original packages.

Second, packages are found to attract *attention* (Underwood et al. 2001; Garber et al. 2000a; Goldberg et al. 1999; Schoorman and Robben 1997). Garber et al. (2000a) and Schoorman and Robben (1997) found that colours on packages attract the attention of consumers. In addition to colour, they point out that the shape of packages attracts attention. Underwood et al. (2001) and Goldberg et al. (1999) support the finding that the appearances of packages attract attention. In fact, Goldberg et al. (1999) found that by dismissing such non-verbal signs as colours, the attention to verbal signs can be increased. Furthermore, packages are claimed to attract attention when their appearances are not typical within a product class (Garber et al. 2000a; Schoorman and Robben 1997). In other words, past research has discovered that deviating packages attract attention. More closely studies show that deviating package colours and shapes attract attention (Garber et al. 2000a; Schoorman and Robben 1997). Underwood et al. (2001), on the other hand, found that pictures on packages attract attention particularly in cases when consumers are less familiar with a brand.

Third, packages are maintained to function as a means of *communication* (Underwood and Klein 2002; Garber et al. 2000a; Gordon et al. 1994; Homer and Gauntt 1992; Rigaux-Bricmont 1981; McDaniel and Baker 1977). For example, it is found that package appearances have an impact on the evaluation of the core product (e.g. Schoorman and Robben 1997; Gordon et al. 1994; Homer and Gauntt 1992; Rigaux-Bricmont 1981; McDaniel and Baker 1977). On the other hand, pictures of the core products on packages are not found to have an improved impact on the evaluation of the brand, although pictures had an improved impact on brand beliefs and attitudes towards the package (Underwood and Klein 2002). Further, it is claimed that brand identity and image can be created through packages (Underwood 1999). Studies that have focused on other single signs than pictures on packages have found that such single package signs as colours (Gordon et al. 1994), brand names (Rigaux-Bricmont 1981), and materials (McDaniel and Baker 1977) convey brand meaning.

As said previously, Kojina et al. (1996) found that the colours accepted on packages by consumers may be limited. However, Kojina et al. (1996) also suggest that preferences regarding colours and patterns may have an impact on brand choices. This finding by Kojina et al. is supported by Gordon et al. (1994), who also found that such a package sign as colours have an impact on brand choices. Thus, a fourth finding concerning past research is that preferences linked to the package appearance are suggested to have an impact on the *choice behaviour* of consumers.

Concerning preferences Granger and Billson (1972), on the other hand, found that consumers prefer larger sizes of packages when the price per unit gets smaller. However, past research not only suggests that the bigger the size of the package, the more the consumer buys, but it also suggests that the bigger the size of the package, the more the consumer uses. The usage volume is also found to increase when the price per unit gets smaller. Thus, the fifth finding postulates that the package size is related to the *volume of consumption* (Wansink 1986).

Sixth, it is suggested that the appearance of the packages may have an impact on the *formation of the consideration set* (Schoorman and Robben 1997; Garber 1995) and this claim is supported in a study by Garber et al. (2000a). Homer and Gauntt (1992), on the other hand, focused on verbal and non-verbal signs, and a seventh finding is that appearances have an *impact on attitudes* concerning brands and packages as well as purchase intentions. For example, Homer and Gauntt (1992) suggest that consumers are influenced by non-verbal signs in time pressure. It is stressed that in these purchase situations consumers process the appearance of the package instead of evaluating verbal information on the package. Homer and Gauntt (1992) suggest that when consumers process the appearance, they use a so-called imagery-processing mode. As said, Underwood et al. (2002) did not find that pictures meant improved brand evaluations. However, they did find that pictures on packages had an improved impact on brand beliefs, and their study also showed that pictures indeed had a positive impact on attitudes towards the package itself.

Finally, Rettie and Brewer (2000) suggest that non-verbal signs such as pictures are better recalled when they are on the left hand side, and verbal signs on the right hand side of the package. Thus, an implication of that study is that the appearances of packages have an impact on how brands are *recalled*.

Indeed, past research stresses that packages have an impact on the behaviour of consumers. When it comes to packages as a means of communication it appears that the package is acknowledged as a marketing communication phenomenon. In fact, packages are suggested to have great possibilities as a means of direct communication (Peters 1994). It is maintained that the package conveys meanings directly to consumers when the decision to purchase is being made. In other words, this refers to the time and to the point of purchase (Rotschild 1987). It is suggested that the package may, in fact, be regarded as a complementary way to communicate with consumers, something to be compared with advertising in newspapers or other media (Rotschild 1987). It has also been postulated that the package is a permanent medium (Peters 1994). As a result, it seems to be commonly accepted that packages convey meanings about the product and its features, benefits and usage (Garber et al. 2000a; Rothschild 1987).



Although it is well acknowledged that packages convey meanings, it appears that there are few scholarly studies focusing on packages as a means of communication (Underwood 2001; Garber 1995; Gordon et al. 1994). This concerns particularly studies that include consumer data. This claim is supported by Grimes and Doole (1998) and Gorn et al. (1997). A reason for the scarce number of studies on packages may be that marketing communication is traditionally connected with planned activities such as advertising, personal selling, sales promotion, and publicity. Evidently, advertising is the most obvious form of communication. In fact, marketing communication is most often linked to advertising (Underwood and Klein 2002; Mick 1988), which academic studies on marketing communication mainly have focused on.

However, it can be postulated that the scholarly interest in packages will enhance as it appears that the role of packages as a marketplace phenomenon is changing (Kauppinen 2001). First of all, it is claimed that the role of advertising is changing (Peters 1994). This is explained by critics according to whom advertising suffers from ineffectiveness (Vakratsas and Ambler 1999) and misidentification (Pham and Johar 1997). Further, it is claimed that consumers have difficulties in telling various advertisements apart, as they are characterised by similarity (Ehrenberg et al. 1997). Evidently, this leads to an identification problem (Ehrenberg et al. 1997). Elliott and Speak (1998), on the other hand, imply that advertising receives less attention today, and that the attention may be even negative. Second, the previous discussion on the emphasis on the in-store setting supports the suggestion that the role of packages will change. As it appears, it is a well accepted knowledge that packages have an essential role in influencing the consumer choices at the point of purchase.

To conclude, it can be found that packages have many functions (Hine 1995), two of which are mainly stressed as being important at the point of purchase. One is the package as a means to attract the attention of the consumer (Garber et al. 2000a; Schoorman and Robben 1997; Garber 1995). The other is the communicative function (Underwood and Klein 2002; Underwood et al. 2001; Garber et al. 2000a; Rettie and Brewer 2000; Simonson 1997; Moriarty et al. 1996; Garber 1995; Gordon et al. 1994; Keegan et al. 1992; Bassin 1988), which is emphasised by claiming that the package is actually the most essential communicative element of the product (DeLozier 1976).

The study has found that the two functions are closely related to each other, and they are further discussed next. However, the main emphasis is on the latter function.

### 2.2.2 Packages and attention

The buying process in the store begins by the consumer identifying the shelf that displays the relevant product class. A product class consists of brands that share several similarities that are relevant for the consumer. In retail stores brands are usually grouped on the basis of their physical characteristics and the need they satisfy (Garber et al. 2000a; Schoorman and Robben 1997). For example, pharmaceuticals are grouped according to the nature of the core product, such as vitamins, or the illness they are supposed to cure, such as pain or the flu. The consumer identifies a product class most likely when she identifies one or several brands or, for example, when she notices a

verbal sign indicating the product class. Furthermore, product classes are identified by non-verbal signs, and Grossman and Wisenblit (1999) stress that colour is one of such signs.

A precondition for identification of a brand is that the consumer is exposed to a brand. On the one hand, this requires the brand to be found on the shelf. On the other hand, it also requires that the brand is in the right place (Evans et al. 1996). Basically, brand accessibility is emphasised in this context (Nedungadi 1990).

Identification means, above all, that the appearance of the package attracts attention. If we return to the scenario and think of Sandra at the pharmacy, it is obvious that, although the brand is accessible, she will not process any information or evaluate any brands if she does not pay attention to them. Obviously this means that attention is a precondition for communication (Schoorman and Robben 1997; Danger 1987a.). Thus, it can be claimed that one of the prime functions of various marketing activities is to attract attention. The purpose of attention is claimed to be to interrupt existing choice behaviour by arousal (Bettman 1979).

Attention has been defined as

*‘The momentary focusing of information processing capacity on a particular stimulus.’*  
(Schoorman and Robben 1997:274)

Since the brand is accessible, the question that comes into mind is how brands attract attention through packages? The function of attention is clarified by the classification suggested by Kahneman (1973) regarding voluntary and involuntary attention. Previous studies focusing on packages as a means of attracting attention postulate that typical as well as novel packages attract the attention of consumers (Garber et al. 2000a; Schoorman and Robben 1997; Garber 1995). Thus, the means of typical packages to attract attention (Garber et al. 2000a) can be explained by *voluntary attention*. Voluntary attention indicates that the attention of the consumers is attracted because it is relevant for the task that the consumer performs (Kahneman 1973). The task means, for example, that the consumer searches for something and that she uses packages to search for something and for identification. In other words, the aim of signs on packages is to attract consumers’ attention. However, those signs are also used by the consumer to search for the brand and to identify with it (Garber et al. 2000a). A common characteristic of these signs is familiarity and, as a result, less effort is needed for processing them.

In contrast to the signs that the consumer is familiar to are the less familiar ones, which require more effort for processing (Kahneman 1973). These unfamiliar signs refer particularly to novel and surprising signs, and they explain *involuntary attention* (Kahneman 1973). Garber et al. (2000a) and Schoorman and Robben (1997) found that novel packages attract attention. Schoorman and Robben (1997) studied how the degree of deviation of typicality in package design attracts consumers’ attention. They discovered that attention increases with the degree of deviation, which means that attention is attracted with new package appearances, i.e. when novel signs are used on packages.

When it comes to specific signs that attract attention, it can be found that past research maintains that such signs like colours attract attention. In fact, it is postulated that the colour is the first sign that the consumer pays attention to on a package (Danger 1987a; 1987b). Previous studies support the idea that colours attract attention particularly when consumers seek for variety in their brand choices (Garber et al. 2000a; Schoorman and Robben 1997). In addition, it is found that the shape of products (Bloch 1995) attracts attention. Schoorman and Robben (1997) affirm that this concerns the shape of packages as well. Pictures on packages are emphasised to attract attention, particularly when the brands are not very familiar to the consumer (Underwood et al. 2001).

## 2.2.3 Packages and communication

As said, attention is a precondition for communication, i.e. information processing (Schoorman and Robben 1997; Danger 1987a.). Vuokko (1992) supports this by maintaining that attention leads to perception. The link between attention and perception is further emphasised by claiming that in order to have an impact on behaviour a sign must have a mental effect, regardless of whether it is conscious or unconscious (Vakratsas and Ambler 1999).

Before discussing packages as a means of communication, the concept of marketing communication is defined.

### 2.2.3.1 Definition of marketing communication

Communication is defined as message transactions among participants (Hanneman and McEwen 1975), and specified as human communication when messages are sent from one person to another (McQuail 1975; Wiio 1973). As Dance and Larson (1976) found at least 126 different definitions of communication, it is easy to agree that a more accurate definition of the concept is dependent on the research area and on the context of the study (Berger and Chaffee 1987).

Several definitions of marketing communication can be found as well. One still valid definition was given by DeLozier as early as 1976, when he stated the obvious, which is that marketing communication is primarily a

*‘continuing dialogue between buyers and sellers in a marketplace.’*

(DeLozier 1976:168)

He gives a more precise definition of marketing communication from a managerial point of view in the following statement:

*‘Marketing communication is the process of presenting an integrated set of stimuli to a market target with the intent of evoking a desired set of responses within that market, and setting up channels to receive, interpret, and act upon messages from the market for purposes of modifying present company messages and identifying new communications opportunities.’*  
(DeLozier 1976:168)

In the first definition DeLozier (1976) points out the concept of dialogue, which is strongly emphasised also by other researchers (Grönroos 2000; Duncan and Moriarty 1998). It can be contended that the second definition is based on the traditional two-way communication model. In addition, the latter definition emphasises the integration of a set of stimuli, which can be postulated to indicate that marketing communication is a process in which marketing activities should be integrated in order to send the same messages<sup>13</sup>. Thus, the definition points out the message itself and its impact on the consumer. However, as Fill (2002) points out that the definition by DeLozier (1976) fails to recognise that marketing communication should add value, for example, through symbolism. In accordance with the present study, Fill (2002) points out that the context of communication has an impact on meanings and interpretations.

Traditionally communication is regarded as a process within the field of marketing. Shramm (1954) introduces one of the first two-way models (Gayeski 1993).

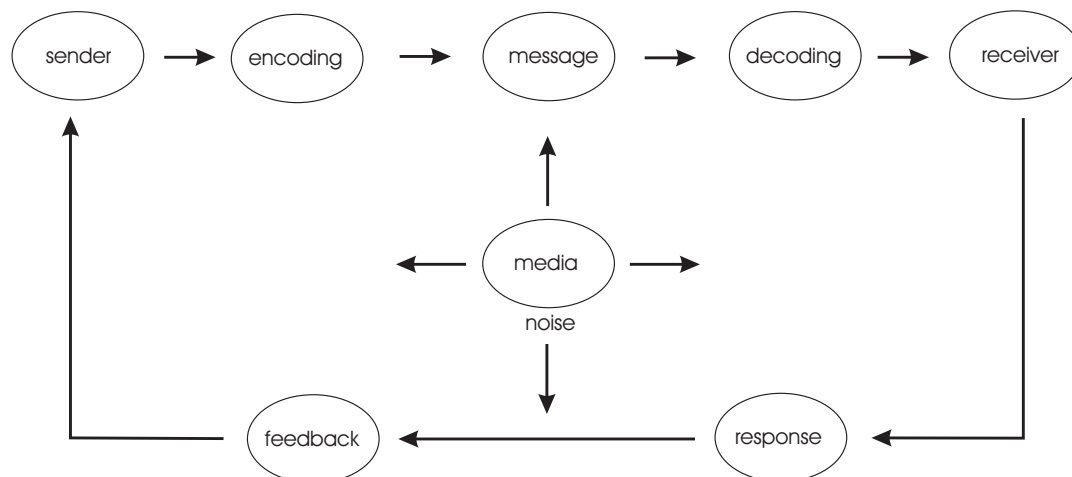


Figure 5. Elements in the communication process  
(Kotler 1989:605)

The model implies that a message is encoded and sent to the receiver, who receives and decodes it. However, following that communication is a two-way process, the model also suggests that the receiver may respond to the message through feedback. Eventual disturbance may have an impact on the process.

<sup>13</sup> The analysis of the definition by DeLozier (1976) is also done in Kauppinen (2001)

In accordance with the claim that the definition of communication is closely related to the context, several purposes of communication are identified (Gayeski 1993). Supporting the latter definition of marketing communication Berlo (1960) has made a distinction between message-centred and behaviour-centred purposes of communication. This classification can be related to the two-way model above as well. Thus, it can be suggested that marketing communication with a message-centred purpose indicates that the focus is on the message. This involves the phases of encoding and decoding the message. Marketing communication with a behaviour-centred purpose focuses, on the other hand, on the consumer, i.e. on influencing the consumers' responses and feedback.

Berlo (1960) explains the message-centred purposes of communication by saying that such communication aims at informing, persuading and entertaining. Within the field of marketing the aims of informing and persuading have traditionally been pointed out (Tom and Eves 1999; Rotschild 1987). However, the emphasis is increasingly on entertaining today (Brown 1998).

It can be postulated that it is desirable that information leads to new knowledge. In other words, this means that it is desirable that an advertisement, for example, results in knowledge about a brand in the minds of the consumer. Persuasion, on the other hand, is defined by Bettinghaus as

*'A conscious attempt by one individual to change the behavior of another individual or group of individuals through the transmission of some message.'*  
(Bettinghaus 1968:13)

Persuasion is also explained as attempts to sell something or to create images (Sonnenberg and Mitchell 1987) or to convey something about someone (Pham and Johar 1997).

Assuming that marketing communication aims at informing, persuading and entertaining, the following question is, consequently, what are these purposes of communication aiming at? This question is answered by the second purpose suggested by Berlo (1960), i.e. behaviour-centred purposes of communication. This purpose of communication postulates that marketing communication also aims at influencing the awareness, the attitudes, and the behaviour of the consumer (Rotschild 1987).

#### *2.2.3.2 Packages and message-centred communication*

The purposes of communication suggested above can be related to the package. Hence, it can be implied that the previous studies on packages by Underwood and Klein (2002), Garber et al. (2000a), Schoorman and Robben (1997), Gordon et al. (1994), Homer and Gauntt (1992), Rigaux-Bricmont (1981), and McDaniel and Baker (1977) focused on packages as a means of message-centred communication.

Underwood and Klein (2002), Gordon et al. (1994), Rigaux-Bricmont (1981), and McDaniel and Baker (1977) focused on specific signs on the package, whereas Garber

et al. (2000a), Schoorman and Robben (1997), and Homer and Gauntt (1992) dealt with the total appearance of the package.

This study is particularly interested in those studies that have focused on some *single package signs*. Past research has investigated such signs as pictures (Underwood and Klein 2002), colours (Gordon et al. 1994), brand names (Rigaux-Bricmont 1981), and package materials (McDaniel and Baker 1977).

Underwood and Klein (2002) studied the impact of *pictures* on packages. When it concerns the issue of message-centred perspective of communication it can be pointed out that Underwood and Klein (2002) say that the study did not find that pictures of the products had an impact on the evaluation of brands. However, the study concludes that pictures may enhance consumers' beliefs about the taste. In other words, the subjects in the study believed that the product would taste better than the products in packages without a picture. Thus, it can be claimed that the study did indeed detect that picture – product relations exist on packages.

Gordon et al. (1994) focused on the *colours* of the packages. The results of their study support the suggestion that colours communicate. Colours were found to be related to the brand as they were found to communicate the quality of the brand. Further, colours were implied to be related to the core product as the study found that colours communicated, for example, such a feature of the product as taste. The study also implies that colours have an impact on the behaviour of consumers'. For example, Gordon et al. (1994) discovered that colours have an impact on brand evaluations and on brand choices.

The impact of *brand names* was studied by Rigaux-Bricmont (1981). This study supports the previous findings concerning the impact of single signs. Thus, the study found that such a sign as a brand name conveys meaning about the quality of the brand. The study also claims that the brand name has an impact on the evaluation of the core product itself.

McDaniel and Baker (1977) studied the *package material* as a means of communication. Also this study supports the previous findings, which is that single signs convey meanings. This study focused on the link between the sign and the core product, and the study found that material communicates the quality of the core product. This study is in line with the two previous ones, i.e. that single package signs communicate and that they have an impact on brand evaluation as well.

In conclusion, it can be implied that the studies above support the notion that signs on packages communicate. In fact, it can also be claimed that the studies show that a sign – product relation can be detected on the package as the signs in question are found to convey meanings about the product.

#### *2.2.3.3 Package and behaviour-centred communication*

The present study suggests that packages as a means of behaviour-centred communication have been studied by Underwood and Klein (2002), Garber et al.

(2000a), Rettie and Brewer (2000), Schoorman and Robben (1997), Gordon et al. (1994), Homer and Gauntt (1992) and Kojina (1986).

As it appears, Underwood and Klein (2002), Garber et al. (2000a), Schoorman and Robben (1997), Gordon et al. (1994), and Homer and Gauntt (1992) focused on both message-centred and behaviour-centred communication.

The studies on behaviour-centred communication have focused on the impact of the package appearance on various phases in the choice process. Such issues as the formation of the consideration set (Garber et al. 2000a; Schoorman and Robben 1997), product recall (Rettie and Brewer 2000), product and brand evaluation (Underwood and Klein 2002; Schoorman and Robben 1997; Homer and Gauntt 1992; Gordon et al. 1994) and choice behaviour (Gordon et al. 1994; Kojina 1986) have been emphasised.

When it comes to the *formation of the consideration set* Garber et al. (2000a) found, on the one hand, that novel package appearances have a positive impact on the formation of the consideration set particularly when the consumer is looking for variety (Garber et al. 2000a). On the other hand, Schoorman and Robben (1997) found that novel package appearances have a positive impact on the formation of the consideration set and on the evaluation of the brands that may be considered, if the deviation of the new packages is moderate.

Rettie and Brewer (2000) studied *brand recall*. As pointed out previously, their study detected that the location of signs on packages is related to how brands are recalled. Thus, by referring to asymmetry of perception Rettie and Brewer (2000) found that recall can be improved by placing verbal signs on the right-hand side on the package and pictorial signs on the left-hand side.

Past research also maintains that a relation exists between the processing mode (imagery versus non-imagery) and the package appearance (visually versus verbally dominated appearances). Homer and Gauntt (1992) found that a link exists, on the one hand, between the imagery mode and visual appearances and, on the other hand, between the non-imagery mode and verbally dominated packages, particularly when it comes to brand attitudes and purchase intentions. Their study maintains that such an issue as time pressure also has an impact on processing by verbal information. Thus, less verbal information is processed when the consumer is in hurry.

Underwood and Klein (2002), on the other hand, studied the impact of pictures on attitudes towards the package itself, the effect of pictures on beliefs about the brand, and the evaluation of the brand. In this study it was proposed that pictures would have an impact particularly when it comes to less familiar brands. As said in the discussion on the message-centred communication, Underwood et al. (2002) did not find that pictures meant improved brand evaluations. However, they did find that pictures indeed had a positive impact on attitudes towards the package itself, and their study also showed that pictures on packages had an improved impact on brand beliefs. For example, they found that pictures have a positive impact on the beliefs about the taste. In other words, the products in packages covered by a picture were believed to taste better than the products in packages without a picture. Another interesting finding in the

study by Underwood and Klein (2002) was that familiarity with the brand did not show any effect on the three issues that were studied.

Kojina (1986) studies the relation between design and pattern preferences, and design and colour preferences. They found that design and pattern preferences were related to each other whereas design and colour preferences were not. Kojina (1986) postulates further that the consumer may only accept a few colours on a package. The study concludes that preferences regarding colours and patterns may have an impact on *brand choices*. As pointed out previously, Gordon et al. (1994) support the idea that colours on packages may have an impact on brand evaluation and on brand choices.

As concluded in the previous section on message-centred communication, it appears that signs on packages communicate, and that sign – product relations can be detected on packages. However, as discussed in this section concerning past research focusing on behaviour-centred communication, it also appears that the signs on packages have an impact on the evaluation of brands and core products. It seems that the signs on packages influence brand choices as well. Thus, it can also be concluded that past research suggest that sign – product relations exist and that the relations have an impact on the behaviour of consumers.

Based on the previous discussions on the effect of the package at the point of purchase with an emphasis on the package and communication the following conclusion is stated

The package communicates product meaning through  
its appearance having an impact  
on the choice preferences

## 2.3 NON-VERBAL SIGNS AS A MEANS OF COMMUNICATION

Marketing communication is usually a combination of verbal and non-verbal signs (Gabbott and Hogg 2000; Houston et al. 1987). In fact, Heckler and Childers (1992) argue that effective communication involves verbal as well as non-verbal signs. Effectiveness refers to communication that the consumer understands, and which is relevant and compatible for the consumer (Ratneshwar and Chaiken 1991; Rotschild 1987).

As a result, effective marketing communication requires that some preconditions are met (McQuail 1975:51-52):

1. the signs that are used must be understood in a common way and they must have a general meaning
2. in order to communicate understandably, the signs used must be interpreted in advance by the sender
3. the sender and the receiver must understand abstract and symbolic concepts and signs in the same way



It is also pointed out that the communicated message must be connected with the needs of the receivers of the message, and that the receivers must accept the message (Pham and Johar 1997; Ratneshwar and Chaiken 1991). These issues are closely linked to the characteristics of the consumers and targeting of marketing activities, which are emphasised today (Nordman 2004; Grier and Brumbaugh 1999; Holland and Gentry 1999; Lavidge 1999). Effective communication means, on the one hand, that the consumers remember and value the messages. On the other hand, it means also that the consumers will most likely associate the messages with the sources, such as brands or companies (Pham and Johar 1997).

As said, verbal signs are literal signs such as a brand name and producer, whereas non-verbal signs are such signs on packages as colours and the material of the package.

Non-verbal signs count for 90 % of all communication according to one estimation (Fromkin and Rodman 1993). Although the figure explaining the relation between verbal and non-verbal communication varies (Zaltman 1997; Haley et al. 1984), it is obvious that the majority of communication is conveyed through non-verbal signs. As pointed out previously, it appears, in spite of this, that non-verbal signs have not received much attention in scholarly studies within marketing (Gabbott and Hogg 2000; Homer and Gauntt 1992; Houston et al. 1987). Haley et al. (1984) suggest that the scarce number of studies focusing on non-verbal signs is explained by the fact that it is assumed that effective communication is verbal communication involving verbal signs. Despite this, it must be pointed out that the positive impact of non-verbal signs in a marketing context is well acknowledged by past research.

### 2.3.1 Findings from past research on non-verbal signs

Most of the previous studies on non-verbal signs with marketing implications have focused on pictures as non-verbal signs and particularly on pictures in the context of advertisements. Because there appear to be few studies that have focused on the impact of non-verbal signs on packages some of the findings of the studies on non-verbal signs on advertisements are discussed next.

First of all, it is maintained that non-verbal signs *attract more attention than verbal signs*. This indicates that non-verbal signs can lead to the processing of messages (Finn 1988). This finding is supported by the previous notions according to which attention is a precondition of communication.

Second, it is found that non-verbal signs can have an *impact on persuasion* (Pieters and Warlop 1999; Miniard et al. 1991). The impact of non-verbal signs on persuasion is supported particularly when it concerns effective marketing communication. It is even claimed that non-verbal signs do not merely have an impact on persuasion, but that persuasive communication is sometimes even more effective when using non-verbal signs (Haley et al. 1984; DeLozier 1976). Basically, it is well acknowledged that non-verbal signs communicate and, as said, it is claimed that consumers perceive various signs and that those signs are processed as information as well (Pieters and Warlop 1999).

Third, an important finding concerning non-verbal signs in a marketing context is that non-verbal signs are found to have an improving *impact on memory* (Houston et al. 1987; Childers and Houston 1984). This is stated to be an important research area as memory may have an impact on the decision-making process of consumers (Houston et al. 1987). It is, for example, found that non-verbal signs (i.e. pictures) are better remembered than words (Houston et al. 1987).

Fourth, past research has found that non-verbal signs may *influence the recall of verbal signs* (Miniard et al. 1991; Unnava and Burnkrant 1991). This can be claimed to be an important finding as it suggests that non-verbal signs may have an impact on the recall of the brand name (Houston et al. 1987). Furthermore, the finding means that non-verbal signs may have an improving impact on how information about the product attributes is recalled (Childer and Houston 1984).

Finally, it is pointed out that non-verbal signs may have an *impact on the attitudes* of consumers, such as brand attitudes (Babin and Burns 1997; Mitchell 1986). This means that non-verbal signs may have an impact on attitudes, which on the other hand presumable have an effect on forthcoming actions (Houston et al. 1987). Accordingly, this means that non-verbal signs may have an impact on the behaviour of consumers (Miniard et al. 1991; Gorn 1982).

Some reflections can be made concerning the previous studies dealing with non-verbal signs. To begin with, it seems that there are few studies focusing on the impact of non-verbal signs on actual consumer behaviour (Houston et al. 1987). In fact, it is pointed out that the impact of non-verbal signs on consumer information processing and decision-making has not received much attention (Houston et al. 1987). In addition, it is stressed that the persuasive function of non-verbal signs is not fully understood (Homer and Gauntt 1992; Mitchell 1986). This is explained by implying that it is assumed that verbal signs mostly influence attitudinal and behavioural responses. It is also alleged that it is commonly assumed that consumers translate non-verbal signs into verbal information about the product (Homer and Gauntt 1992). This assumption suggests that the consumer consciously interprets various signs.

However, the view on the conscious interpretation of signs by consumers is in consumer research being replaced by the emphasis on imagery-processing modes (Homer and Gauntt 1992). Supported by Homer and Gauntt (1992) it has been postulated that non-verbal signs lead to visual imagery processing (Rossiter and Percy 1978).

Imagery is defined as

*‘a process by which sensory information is represented in working memory.’*

(MacInnis and Price 1987:473)

The definition suggests further that imagery processing, and information processing in general can range from a few simple and vague images to many complex and clear images (MacInnis and Price 1987). This indicates that image includes sight as well as taste, hearing, smell and touch (Babin and Burns 1997; Bone and Ellen 1992). Thus, the imagery processing of signs suggests that non-verbal signs may lead to unconscious

interpretations that are stored in non-verbal visual, sensory, or emotional modes (Supphellen 2000; Zaltman 1997). When it concerns the focus of this study an interesting conclusion from past research is that these so-called images or meanings that are created in the minds of the consumer have an impact on the behaviour of the consumers. Furthermore, the images or meanings appear to have an impact on consumers regardless of whether consumers create the images or meanings consciously or unconsciously.

Based on the previous research findings concerning non-verbal signs as a means of communication the following conclusion is stated

Non-verbal signs communicate product meanings, these meanings having an impact on choice preferences

## 2.4 COLOURS AS NON-VERBAL SIGNS

Colour is one of the non-verbal signs that is recognised as an important marketplace phenomenon (Garber et al. 2000a; Grimes and Doole 1998; Gorn et al. 1997; Schoorman and Robben 1997; Evans et al. 1996; Gordon et al. 1994; Belizzi and Hite 1992; Danger 1987a; Danger 1987b). Its importance is recognised particularly when it comes to advertising and packaging (Belizzi et al. 1983). Often, colour is referred to as an aesthetic aspect. According to Ball (1964) the aesthetics of colours indicate an affective response in the continuums of pleasant-unpleasant, and beautiful-ugly. It may also indicate feeling and emotional qualities of experience. It can be suggested that the definition given by Ball also indicates a response in the continuum of like-dislike. Within the field of marketing particularly two functions of colours are pointed out: attention and communication. These two functions are discussed below. In order to give some perspective on the discussion concerning past research on colours, a short discussion is presented concerning past research conducted within the field of psychology as well.

To begin with, the concept of colour is discussed.

### 2.4.1 The concept of colour

Colour is part of our daily life through such issues as clothes, food, weather, races, interiors, architecture, animals and so on (Birren 1945, 1956, 1983). When it comes to research, five main areas are detected (Itten 1970). First, colours are studied within *chemistry*, in which issues such as industrial research and production are in focus. Second, colours are studied within *physiology*, where issues regarding the effect of colours, for example, on our eye and brain are emphasised. Third, colours are studied within *physics*, where the physical nature of colours, such as light and its particles are investigated. The fourth main area within research on colours is from the *aesthetic* point

of view. Finally, Itten (1970) postulates that the fifth research area is concerned with the impact of colour on our mind and brain, i.e. studies made within *psychology*.

As it appears many fields are concerned with colours and, thus, there are many angles to view colours from.

Most people probably connect colours with pigments, which evidently is especially important to an artist (Danger 1987b). However, following the classification of various research areas, colour is a response of the nervous system to a physiologist and a perception in the mind to a psychologist (Danger 1987b). Primarily, colour is nevertheless a physical phenomenon (Gordon et al. 1994; Danger 1987b), which means that the colour is dependent on light. In fact, colour cannot exist without it, and consequently, light is a precondition for colour.

#### 2.4.1.1 Definition of hue, value and chroma

Danger (1987a; 1987b) has postulated that the sign of colour means different things to different people. However, the difference concerns not only how colours are defined, but also how different colours are perceived. This means that someone may define a colour as green, whereas someone else defines the same colour as blue. Likewise, the concept of green may lead to different colour perceptions in the minds of different people. This means that my perception of green is hardly the same as yours.

Three basic properties of colours are found: hue, value, and chroma. These concepts are defined in order to understand the forthcoming discussions. It can also be noted that the literature uses various synonymous concepts for the same property.

*Hue* stands for the colour pigment, such as red, green, blue and so on (Chattopadhyay et al. 1994).

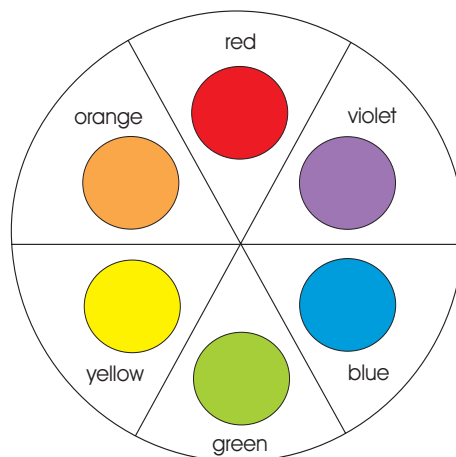


Figure 6. Colour wheel

Colours are, in addition, divided into primary and secondary hues. The primary hues are yellow, red and blue. Secondary hues are the result of the mixture of the two neighbouring primary hues in the wheel. Secondary hues can also be achieved by mixing primary hues with white or/and black (Schindler 1986).

Colours mixed with black and/or white are also defined as *value* (Gorn et al. 1997) or as *brightness* (see Schindler 1986; Adams and Osgood 1973). It seems that these two concepts are more commonly used for the same phenomenon in colour studies. This property of colour means basically the degree of lightness or darkness of the colour, i.e. tints or shade (Chattopadhyay et al. 1994; Caudill 1986).

*Chroma* is also referred to as *saturation* (Gorn et al. 1997; Chattopadhyay et al. 1994) or intensity (Caudill 1986). This property of colour is connected with the amount of pigment in the hue. This means that highly saturated colours consist of more pigments than less saturated colours (Chattopadhyay et al. 1994).

#### 2.4.2 Colours and attention

The function of colours to attract attention is emphasised by arguing that colour is the most important visual sign to attract attention, as it is the first sign that the consumer notices on a package (Danger 1987a; 1987b). Evidently, attention involves eye movements, and therefore it can be implied that colour as a means of attracting attention is primarily a physiological response (Danger 1987a).

Also, the role of colours as a means of attracting attention can be clarified according to the classification of voluntary and involuntary attention (Kahneman 1973). Thus, the present study suggests that colours attract attention, first of all, because it is *voluntary*. This indicates that consumers use colours intentionally. The present study suggests that voluntary attention to colours means that consumers may use colours intentionally basically in search of brands. Grossman and Wisenblit (1999)<sup>14</sup> support this postulation. Also the fact that brands are associated with colours is supported by previous studies. For example, Madden et al. (2000) and Grimes and Doole (1998) found that some international brands are strongly related to colours. Such associations between colours and brand are, for example, the colour of red and Coca-Cola, red and Marlboro, as well as gold/yellow and Kodak (Grimes and Doole 1998). Thus, consumers may use colours associated with certain brands when they search for the brands in a store. However, the present study also suggests that consumer may use colours intentionally for identification of brands and core products. The fact that colours are used for identification of core products, is supported by Garber et al. (2000b). They focused on colours and food, and they found that consumer used colours for identification of the quality of such raw materials as vegetables, for example.

Second, it can be postulated that colours attract attention because the latter is *involuntary*. It can be suggested that particularly this function of colours is closely related to the fact that attention is primarily a physiological response (Danger 1987a).

Garber et al. (2000a) and Schoorman and Robben (1997) studied colours and attention, although they did not study attention to colours as a physiological response. In other words, they did not study actual eye movements. However, it can be claimed that their studies give some explanations to involuntary attention to colours. They studied new

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<sup>14</sup> The study lacks empirical data.

packages, and found that colours attract attention on packages when they deviate from the colours of the original packages in the specific product class (Garber et al. 2000a; Schoorman and Robben 1997). This finding implicate that consumers are attracted to colours on packages although they do not intentionally intend to pay attention to the package.

Past research postulates that colours not only attract the eye of the consumer but that colours attract consumers physically as well. This means that colours may attract consumers into a store, for example (Belizzi et al. 1983). The functions of colours to attract the eye as well as to attract consumers physically are related to the pigment of the colour. The colours of yellow and red are particularly pointed out to have the capacity of attracting the consumer. Thus, these two warm colours are found to attract the eye of the consumer and to attract consumers into stores and to display windows (Belizzi et al. 1983). The study by Belizzi et al. (1983) shows no evidence that a link exists between attention and colour preferences, i.e. that consumers are attracted to those colours that they prefer. However, there seem to be two explanations to the previous findings. On the one hand, the previous findings are explained by the fact that colours draw attention because they have an affective value (Belizzi and Hite 1992). On the other hand, the results can be explained by the physiological aspects of colours, which means that some pigments, such as in warm colours, are argued to have an arousal effect on consumers (Grossman and Wisenblit 1999; Belizzi et al. 1983). In other words, it is postulated that the brain is more influenced by warm colours than by cool colours, which means that warm colours lead to an increase of blood pressure and breathing frequency, and to an increase of the amount of eye blinking (Grossman and Wisenblit 1999; Belizzi et al. 1983). In fact, cool colours such as green and blue are argued to have the opposite effect, which means that they are calming. A conclusion is that long-wavelength colours (e.g. red and yellow) are more arousing than short-wavelength colours (e.g. green and blue). Although it is out of the scope of this study to discuss this issue further, it can be mentioned that these reactions are explained by the fact that the increase of blood pressure, for example, is inherently unconditioned (Belizzi and Hite 1992).

To conclude, it can be pointed out that colours are not only emphasised when it comes to attracting attention. In fact, it is also claimed that colours have the ability to retain attention (Schoorman and Robben 1997; Petty et al. 1983). This is evidently an important function within marketing as it assumed that attention leads to perception, i.e. communication.

#### 2.4.3 Colours and communication

The function of colours as a means of communication is linked to the assumption that colours have an impact on our mind and brain. This means that it can be postulated that colour studies within marketing are linked to the studies published within the field of psychology.

The discussion on colours and communication below follows the classification by Berlo (1960) on message-centred and behaviour-centred purposes of communication. Thus, first those previous studies that are related to colours as a means of communication are

discussed. Basically, this means that association studies are discussed. Second, past research that has focused on the impact of colours on behaviour are discussed. This discussion includes studies that have focused on the impact of colours on attitudes as well as the affective aspects of colours.

It is important to note that the studies conducted explicitly in the context of packages are excluded, as they have been examined previously (such as Garber et al. 2000a; Schoorman and Robben 1997; Gordon et al. 1994). Furthermore, only those colour studies that assumingly contribute to the understanding of the impact of colours at the point of purchase are examined. This means basically that those studies that are found in the third research area of colour studies are discussed. In other words, those studies are discussed that have focused on the effect of specific colours and that are based on empirical consumer data.

#### *2.4.3.1 Colours and message-centred communication*

The current study implies that the studies by Garber et al. (2000b), Madden et al. (2000), Grimes and Doole (1998), Belizzi and Hite (1992), Jacobs et al. (1991) Middlestadt (1990) and Belizzi et al. (1983) focused on colours as a means of message-centred communication.

It can be postulated that the studies mentioned above deal with two main issues. First of all, they focus on colour associations (Madden et al. 2000; Grimes and Doole 1998; Jacobs et al. 1991). Second, they aim at investigating the perception of colours in relation to such research contexts as countries, restaurants, theatres or other institutions, and soft drink labels and cigarettes (Jacobs et al. 1991), logos (Madden et al. 2000), brands (Grimes and Doole 1998), pens (Middlestadt 1990), food (Garber et al. 2000b), and retail stores (Belizzi and Hite 1992; Belizzi et al. 1983).

The studies by Madden et al. (2000), Grimes and Doole (1998) and Jacobs et al. (1991) are conducted in a cross-cultural context. These studies stress that at least some degree of colour agreement exists across various countries when it concerns *colour associations*. This means that the studies above found that consumers from different countries associate colours similarly. Although the findings in the studies by Madden et al. (2000), Grimes and Doole (1998) and Jacobs et al. (1991) support each other concerning the previous issue it appears that some disagreement exists in other issues. Grimes and Doole (1998), for example, support the use of colours in building brand awareness and identity<sup>15</sup>, but not in building brand image. Colour as a means of building brand identity is supported by findings concerning agreements of colour associations between countries such as Taiwan and the UK. Madden et al. (2000), on the other hand, claim that colours are important in building brand images as well. Thus, Madden et al. (2000) support the use of colours as a means of building brand images because of the universal meanings that colours are associated with. The findings suggested by Jacobs et al. (1991) fall in between by implying that in some cases colours

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<sup>15</sup> Colour is referred to as a cue that a brand can be identified or associated with, for example, red and Coca-Cola, red and Marlboro, as well as gold/yellow and Kodak.

convey universal meaning, but that country-specific associations exist as well. Despite the disagreements, the three studies above imply that colours communicate, i.e. that colours convey meaning. Although the issue of context is not implicitly discussed in the studies, the studies also show that colour meanings are related to the context.

Garber et al. (2000b) focused on the effect of food colour on perceived flavour. This study found that consumers use colours in order to identify flavour. However, the study also detected that colours had an impact on the perception of flavour. In particular, Garber et al. (2000b) found that colours had an impact on the perception of such flavour as refreshing, tart and natural, expensive flavour. For example, orange was perceived as refreshing, whereas purple was perceived as tart when it concerns beverages.

The studies by Middlestadt (1990) and Belizzi and Hite (1992) focused on the specific colours of blue and red. Middlestadt (1990) found that the background colour had an impact on how the product was perceived. She claims that products with a background of cool colours, such as blue, were perceived more positively than those with a background of warm colours, such as the colour of red. Thus, a finding was that blue as a background colour communicated the image that the pen is elegant and unique. Belizzi and Hite (1992) and Belizzi et al. (1983) support the findings by Middlestadt (1990) in the context of retail stores.

#### *2.4.3.2 Colours and behaviour-centred communication*

The present study suggests that colours as a means of behaviour-centred communication are studied by Gorn et al. (2004), Babin et al. (2003), Mandel and Johnson (2002), Gorn et al. (1997), Chattopadhyay et al. (1994), Greer and Lohtia (1994), Belizzi and Hite (1992), Grønhaug et al. (1991), Middlestadt (1990), and Belizzi et al. (1983). According to the definition given to behaviour-centred communication this means that the studies focusing on such issues as the impact of colour on influencing the awareness, the attitudes and the behaviour of the consumer are discussed next.

As it appears, the present study postulates that the studies by Belizzi and Hite (1992) Middlestadt (1990), and Belizzi et al. (1983) focused on colours as a means of message-centred as well as behaviour-centred communication.

Grønhaug et al. (1991) studied the impact of colours on recognition, i.e. the impact of colours on the awareness of advertisements. They found that colours indeed have such an impact on consumers. Greer and Lohtia (1994), on the other hand, focused on the impact of colours on response rates in a mail survey. However, they did not find that colours had any such impact. The other studies have focused on the affective value of colours (Babin et al. 2003; Gorn et al. 1997; Chattopadhyay et al. 1994; Belizzi and Hite 1992; Belizzi et al. 1983) and the impact of colours on attitudes (Gorn et al. 2004; Mandel and Johnson 2002; Gorn et al. 1997; Chattopadhyay et al. 1994; Middlestadt 1990).

One interesting finding in the previous studies is that chroma and the value of colours appear to have a greater affective value than hues (Gorn et al. 1997; Chattopadhyay et al. 1994). Furthermore, chroma and the value of colours appears to have a greater



impact on attitudes than hues (Gorn et al. 1997; Chattopadhyay et al. 1994). In fact, Gorn et al. (1997) found that higher levels of chroma had an arousal impact, i.e. an impact on feelings of excitement. Higher levels of value, on the other hand, were found to have an impact on feelings of relaxation. These feelings had in turn a positive impact on attitudes toward the advertisement and the brand on the advertisement. These findings were made in the context of advertisements.

Middlestadt (1990) focused explicitly on the colours of blue and red as background colours. She studied how the background colour of pens affects purchasing. A finding in that study was that the cool colour of blue has a positive impact on attitudes towards purchasing.

Mandel and Johnson (2001) also studied the impact of background colours. However, they focused on a website, and to detecting possible differences in choice behaviour concerning novices and experts. They found that such visual signs as colours indeed have an impact on choice behaviour on the internet and that novices, i.e. less advanced users, as well as experts, i.e. experienced users, were influenced by them. Thus, it can be concluded from that study that colours may have an impact on attitudes, as colours may change behaviour.

Also Gorn et al. (2004) focused on the impact of background colours on websites. The study found that colours that had an impact on feelings of relaxation influenced time perception. This means that websites with background colours that induced relaxation were perceived to be downloaded quicker than other web sites. Gorn et al. (2004) also found that colours had an impact on the evaluation of web sites, and such consequences as likelihood of whether the web sites would be recommended to others.

Belizzi et al. (1983) found in a retail context that warm colours actually draw consumers into the store. They state that this function of colours concerns windows displays as well. In other words, Belizzi et al. (1983) imply that warm colours attract consumers physically into stores and to display windows.

In a later study Belizzi and Hite (1992) found that cool colours such as blue encourage shopping behaviour in a retail context more than red. As pointed out previously, Belizzi and Hite (1992) explained the finding by arguing that colours have an affective impact on consumers. Babin et al. (2003) support the idea that blue is a favourable colour in a retail context. For example, they found that retail stores with blue interiors were evaluated more positively and that the colour encourages shopping intentions more than orange.

Based on the previous discussion concerning colours as non-verbal signs with an emphasis on colour as a means of communication the following conclusion is stated

Colours communicate by creating meanings  
about the product itself

#### 2.4.4 Past research on colours within psychology

The examination of past research within psychology differs from the previous review of colour studies made within the field of marketing. This is due to the classification of colour studies within psychology, which suggests that two main research areas can be detected (Taft 1997; Sivik 1970): colour preferences and colour associations.

##### Colour studies within psychology: preferences

It has been stated that colour studies within psychology have mainly focused on studying colour preferences. The first study on colour preferences from a psychological point of view was an experimental study by Cohn<sup>16</sup> in 1894 (Taft 1997; Sivik 1970; Granger 1955). The initial study by Cohn was followed by colour studies, which mainly aimed at examining whether colour preferences can be found to have a general order (Sivik 1970). As a result, for example, Guilford (1934) and Eysneck (1941) proposed a universal preference order of fully saturated hues. Such an order of colour preferences has been suggested as blue, red, green, purple<sup>17</sup>, orange, and yellow (Eysneck 1941).

The view of the universality of colour preferences has resulted in contradictory claims. On the one hand, it has been found that colour preferences are universal, which means that colour preferences are not connected with culture (Adams and Osgood 1973; Eysneck 1941). On the other hand, it has been claimed that preferences for colours do differ across cultures (Saito 1996). For example, Wiegersma and Klerck (1984) support this by saying that '*the blue phenomenon is red in the Netherlands*'.

Regardless that contradictory findings exist concerning the impact of culture on colour preferences, it appears that in fact few colour studies have focused on colour preferences according to geographical area, and on investigating if differences due to geographical area can be detected (Saito 1996). As it appears, it has been stated that colour studies within psychology have mainly focused on studying colour preferences. More closely it has been stressed that colour studies have focused mainly on studying differences in colour preferences by gender, age, race, and personality (Crozier 1999; Taft 1997<sup>18</sup>; Saito 1996; Kwallek et al. 1988). In other words, it can be claimed that this means that colour studies focusing on cultural issues are few.

##### Colour studies within psychology: associations (and affect)

In the 1930s psychologists' interest in colours moved from studying colour preferences towards studying colour associations and which moods colours are connected with: anger, warmth, sorrow (Sivik 1970). Findings related to these areas maintain, for

<sup>16</sup> Cohn, J. (1894): Experimentelle Untersuchungen über die Gefölsbetonung der Farben, Helligkeiten und ihre Combinationen, *Philos. Stud.*, 10, 562-603.

<sup>17</sup> = Violet (see the colour wheel).

<sup>18</sup> At least three interesting reviews of previous colour studies within psychology can be named: reviews by Norman and Scott (1952), Sivik (1970)<sup>9</sup> and Taft (1997). They are published at twenty-year intervals, and it can be concluded that they support each other. Nevertheless, they also emphasise different points of view.

<sup>9</sup> Written in Swedish, with only a short summary in English.

example, that the colour of red is associated with warmth, pleasure, and distraction, and that the colour is stimulating and unpleasant (Sivik 1970).

An additional contradiction has been detected when it concerns previous colour studies within the field of psychology. As it seems, the contradictory claims concern not only studies on colour preferences, but studies on colour associations and on the affective value of colours' as well. Basically, it appears that the issue is about whether the studies that claim that they are about the affective value of colours are in fact investigating colour associations. This contradictory issue is discussed below by referring to some prior colour studies.

To begin with, a finding was that Norman and Scott claimed in 1952 that those previous studies that apparently study colour and affect could in fact be located under the heading of preference studies. According to Norman and Scott (1952) affect should include such concepts as happy, sad, depressing, and other 'emotional tones'. Thus, they claim that past research has mainly focused on the continuum of 'pleasantness - unpleasantness' to study affect, and they point out further that this continuum is too limited. Thus, Norman and Scott (1952) stress that past research using the concept of affect are in fact dealing with a semantic issue than studying colours' real affective value.

A further interesting finding was that, Adams and Osgood (1973) claim twenty years later that their study of the affective value of colours is supported by eighty-nine prior studies of colours and affect. Again, this seems to be a semantic problem, as Sivik (1970) categorises many of the studies that Adams and Osgood (1973) refer to as association studies.

A third interesting finding concerns the study by Karp and Karp (1988). In this study school children were asked to associate concepts such as anger, sadness and honesty with any colour. Karp and Karp define these concepts as '*emotionally-loaded stimuli*' instead of affect. As a result, they maintain that their study is basically a colour association study, and they in fact point out that they are not studying affective value related to colours.

Fourth, the issue of mood can be pointed out, and an early study by Murray and Deabler (1957) can be mentioned. That study stresses that the connection between colours and mood tones is strong. Murray and Deabler (1957) found that a sample of patients linked the colour of red with cheerful and joyful, whereas another sample consisting of students connected these moods with the colour of yellow. A more recent study by Stone and English (1998) also contends that colours have an impact on moods. Their study focused on workspace colours, and they found that colours had an impact on how task demands were perceived. Further, the study by Stone and English (1998) found that blue is calming and red is stimulating.

Despite the previous findings such as by Murray and Deabler (1957), a more recent study Kwallek et al. (1988) argue that there is little empirical evidence concerning the affective value of colours, for example, concerning the effect of colours on moods. Thus, an interesting issue is whether the study by Murray and Deabler (1957) concerns the real moods related to colours or is that study in fact an association study? The

previous claim is supported by Valdez and Mehrabian (1994) who specify that the measures used to study emotional responses to colours are weak. This means that past research has failed in providing reliable and valid experimental designs. Despite these claims concerning the relation between colours and affect it must be pointed out that the study by Belizzi and Hite (1992) indeed postulate that colours have an affective impact on consumers' behaviour.

Obviously it can be concluded that contradictions exist concerning the classification of past research on colours within psychology. Although it is out of the scope of this study to discuss this issue further it appears in some respect that studies focusing on the affective value of colours have not gained reliability. This may be one reason for why, for example, Sivik (1970) categorises the studies of so-called affective colour studies as association studies. As said, he suggests that two main research areas of cognitive nature can be detected: colour preferences and colour associations. His view on past colour studies is in fact supported by a more recent study by Taft (1997).

#### 2.4.5 Reflections on past colour research

There are some comments concerning previous studies which must be pointed out. These comments concern previous colour studies conducted both within psychology and marketing.

To begin with, one of the most essential critical issues is the universal preference order suggested, for example by Eysneck (1941). This criticism can be found in Taft (1997) and McManus et al. (1981). Madden et al. (2000), on the one hand, support the criticism, by maintaining that colour preferences differ. On the other hand, Madden et al. (2000) claim that patterns concerning colour preferences can be found by clustering colour preferences. In addition, they support the view that the colour blue in particular is preferred universally. This contradiction can partly be explained by the comments given by Gorn et al. (1997). They argue that colours might actually function on multiple levels. Hence, Gorn et al. (1997) suggest that colours might have an impact both on a cultural level as well as on a universal level. This argument is supported by an association study by Jacobs et al. (1991) in which they found country specific as well as universal associations. Universal associations mean that colours evoke similar associations in different countries.

A further notion concerns colour findings presented in journals of psychology which are claimed to be contradictory (see Kwallek 1988; Choungourian 1967). Thus, it is argued that many colour studies are not based on empirical evidence. This means that it is claimed that there is no real empirical evidence for some findings and some popularly held viewpoints. Therefore, many findings are in fact claimed to be anecdotal. It has even been claimed that the results of many prior studies are actually worthless (McManus et al. 1981).

An additional critical point in colour studies concerns a semantic issue. This means that it can be claimed that there is a lack of a common language. It can, for example, be asserted that colour studies use the concept of colour as a general conception of the

phenomenon. This means that many colour studies refer to the phenomenon of colour without noting the dimensions of hue, value, and chroma. Gorn et al. (1997), Chattopadhyay et al. (1994), and Valdez and Mehrabian (1994) point out that the perception of colours, as well as the impact of colour, depends on the various colour properties.

A further critical issue is the ignorance of the context (Taft 1997). Accordingly, this seems to concern colour studies in psychology in particular. Actually, it is argued that quite a few studies consider the importance of the context (Taft 1997; Saito 1983). It has been pointed out that the context is ignored, although it seems quite obvious that colour preferences and association, for instance, are connected with a specific context (Taft 1997); a context being a product class, for instance.

As far as colour studies with marketing implications are concerned, it can be found that many studies refer to studies presented in journals within psychology. Therefore, it can be claimed that the previous notions on colour studies within psychology also concern colour studies within marketing. This comment is particularly essential when it comes to colour findings on preferences and associations, as it is claimed that these studies within psychology are mostly conducted without a context.

The issue of ignoring the context seems, on the other hand, not to concern studies that are published in marketing journals as they are most often conducted in a specific context, such as advertising. This means that they most often relate the colour to a particular object, such as a product or particular brand of the advertisement

However, colour studies with marketing implications can be criticised for such a reason as ignoring the colour properties, which means that colour is used as a common concept (Gorn et al. 1997; Chattopadhyay et al. 1994). In addition, it appears that colour in general is a neglected issue within marketing research as only a few of the scholarly studies on colours with marketing implications are published in marketing journals (Grimes and Doole 1998; Gorn et al. 1997). The latter comment also means that it has been claimed that there is a limited number of studies with marketing implications (Grimes and Doole 1998; Gorn et al. 1997; Belizzi and Hite 1992), and which are based on consumer data (Belizzi and Hite 1992). It is also pointed out that the impact of colour lacks systematic empirical research within the field of marketing (Grimes and Doole 1998; Gorn et al. 1997). To conclude, it is argued that due to the scarce number of colour studies generalisations cannot be made and, therefore, it is even claimed that the use of colours within marketing is often based on feelings (Gorn 1997).

To sum up, past colour studies are criticised mainly for the following reasons:

- the lack of a common language
- colour research ignores the context
- lack of real empirical evidence

## 2.5 CONCLUDING NOTES

The theoretical discussion concerning the function of the package and the impact of its appearance in the choice process of the consumer has resulted in four conclusions based on earlier research findings.



*Figure 7. Impact of colours on packages according to previous research findings*

Based on the conclusions above the study assumes that consumers use extrinsic cues in some particular purchase situations in order to make brand choices. One of those purchases is unplanned purchase where the consumer faces an unpredictable problem that needs immediate action. This is referred to as so-called low-involvement purchasing, and it means that the consumer puts limited effort in the decision-making. The theoretical framework concludes that the consumer uses extrinsic cues particularly in cases where she lacks time to search for information about the various brands as she is in a hurry, for example. Furthermore, it is concluded that the package has an impact on the decision-making when the choice involves product classes composed of brands that are indistinguishable from each other. Other aspects that may explain the impact of packages are cases when the consumer lacks brand preferences or when the preferred brand is not available, because it is out of stock, for example.

One of the extrinsic cues that the consumer may use at the point of purchase is the package. Past research has found that one of the reasons why packages have an impact on purchase and the choice behaviour is that packages function as a means of communication. In other words, packages convey various meanings such as about the

product itself. Packages communicate through verbal and non-verbal signs. Verbally packages communicate information about the ingredients of the product as well as the use of the product. However, communication is not only conducted verbally as this study emphasises that all signs communicate, which obviously mean that non-verbal signs communicate as well.

In this study colours are regarded as non-verbal signs, and they are studied as a means of communication. Thus, the final note postulates that colours communicate as non-verbal signs on packages. More closely, it means that colours are suggested to convey meanings about the core product itself. Thus, an assumption is that consumers' use not only the package as a cue, but more closely the package signs. Thus, a further assumption is that the signs communicate, the communication having an impact on consumers' decision-making at the point of purchase.

### 3 THE APPROACH OF SEMIOTICS

In the present study a semiotic analysis is performed to study colours as a means of communication. This chapter clarifies the approach of semiotics and defines those concepts which are suggested by the present study to increase the understanding of the impact of colours.

The chapter begins by defining some basic concepts of semiotics. This is followed by a discussion of the two main schools within the approach of semiotics, as well as the main concepts within these two schools.

When the concepts have been defined, a marketing perspective is introduced. As can be recalled, the prior reviews on packages and colours did not include studies that were conducted from a semiotic point of view. The review in this chapter examines studies that apply a semiotic approach to packages. This means that studies on product design and colours are discussed. Some important issues regarding these studies are also stressed. The chapter ends in a summary, which emphasises the concepts of semiotics applied in the current study.

#### 3.1 SIGNS AND MEANING

It is postulated that the science of signs originates in two main schools of signs<sup>19</sup>, namely the schools of semiology and semiotics. Semiology has its roots in the works by the Swiss linguist Ferdinand de Saussure (1857-1913), who developed his research from a linguistic perspective. Semiotics, on the other hand, was first introduced by Charles Peirce (1839-1914) an American philosopher, who was trained in chemistry and philosophy. He based his general theory of signs on logical and philosophical grounds (Mick 1986).

The examination of the conceptual framework begins with defining two essential concepts within the science of signs, i.e. meaning and sign. The concept of meaning is emphasised as it is maintained that communication involves meanings which are produced and exchanged therein (Duncan and Moriarty 1998). According to Fiske (1990:41) there are several explanations to the concept of meaning, however, they all share three elements, i.e.,

- 1) the sign
- 2) that to which it refers, and
- 3) the users of the signs

The link between the meaning and the sign is pointed out by stressing that the science of signs is concerned with the systems of signs which underlie meanings (Sebeok 1976).

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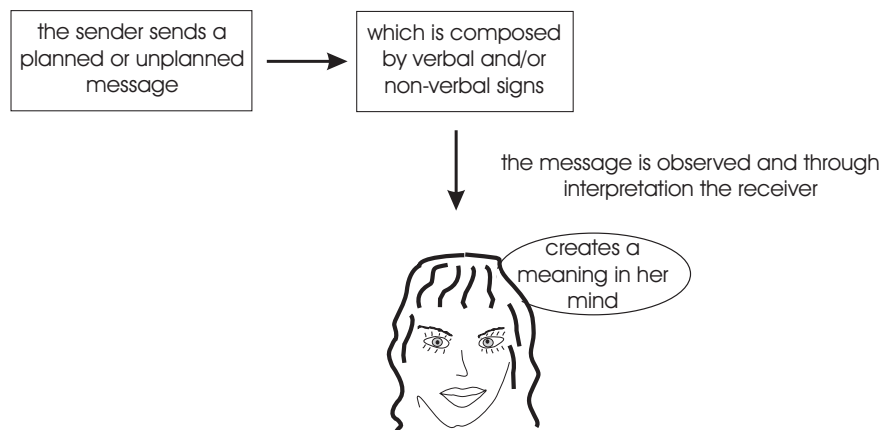
<sup>19</sup> The concepts of semiotics and semiology are discussed in section 3.1.1



The concept of a sign has the following characteristics (Fiske 1990:44):

- It is something physical and perceivable by our senses
- It is referring to something else than itself
- It is dependent on its user's recognition that it is a sign

Basically signs create meanings. In fact, it can be argued that a sign is anything that conveys a meaning. This means, in other words, that communication always involves signs, i.e. signs are always used when a message is sent to another person and when meanings are produced or created. The concepts of message, sign, and meaning can be illustrated with the picture below.



*Figure 8. Concepts of message, sign, and meaning*

Figure 8 illustrates that communication involves two persons, which is in line with the traditional two-way perspective on communication. Thus, the figure indicates that there is someone who by using signs creates a message with a meaning. The message is sent and then received by somebody else, who interprets the signs in the message. Thus, the decoding process is followed by encoding of the message, and evidently that process results in a meaning that the receiver creates by herself. It can be claimed that within the field of marketing the sent messages are foremost regarded as planned messages.

Apart from the fact that some similarities exist between the two schools of signs, disagreement on some issues are found as well. This means that the schools are not only labelled differently, but due to their different foundations, there are disagreements on the use of terminology and on some philosophical standpoints as well (Pinson 1988).

de Saussure<sup>20</sup> and semiology

An essential statement by de Saussure announced that the alphabet of deaf mutes, symbolic rites, polite formulae, and military signals can all be compared with spoken and written languages (Eco 1977). They all aim at communicating something.

de Saussure argued that

*‘Semiology, a science studying the life of the signs in the life of a society, does not as of yet exist, but its place has been determined ahead of time; it has a right to existence.’*

(Fouquier 1990:1)

Even though de Saussure pointed out that communication is not limited to written and spoken languages, he focused on languages. As the founder of modern linguistics (Nöth 1990), de Saussure was particularly interested in words, and how they related to other words (Mick 1986). This connection is also referred to as the sign – sign relation (Mick 1986). de Saussure (1959) described the sign by asserting that the sign is a twofold entity.

sign	signified (concept)
	signifier (sound-image)

*Figure 9. de Saussure’s dyadic sign figure*  
(de Saussure 1959:114)

The two entities are called a signifier and a signified, and a sign is based on the fact that the two entities have a dyadic relationship. The signifier is the physical representation of a sign, such as a word on a paper or a sound in the air (Barthes 1983a; de Saussure 1959). The signified is the mental concept to which the sign refers. According to de Saussure (1959) the relation between the signifier and the signified is arbitrary, and basically it means that the mental concept is usually bound to a language, and it is mutual and shared by the members in a culture.

Fiske (1990) has introduced a figure on de Saussure’s view on the elements of meaning based on the dyadic sign figure. The figure is mentioned as it visualises the concepts by de Saussure, and a comparison of the concepts used in the present study originally suggested by de Saussure and Peirce becomes more comprehensible.

<sup>20</sup> In this study, many secondary references are used to refer to the works by de Saussure. On the one hand, this is due to the fact that his initial works were written in French, and although, his works are translated, they are found as collected papers, edited by others. On the other hand, the present study is not a study into the philosophy of semiology per se. Reliability has been achieved by double checking statements in various references.

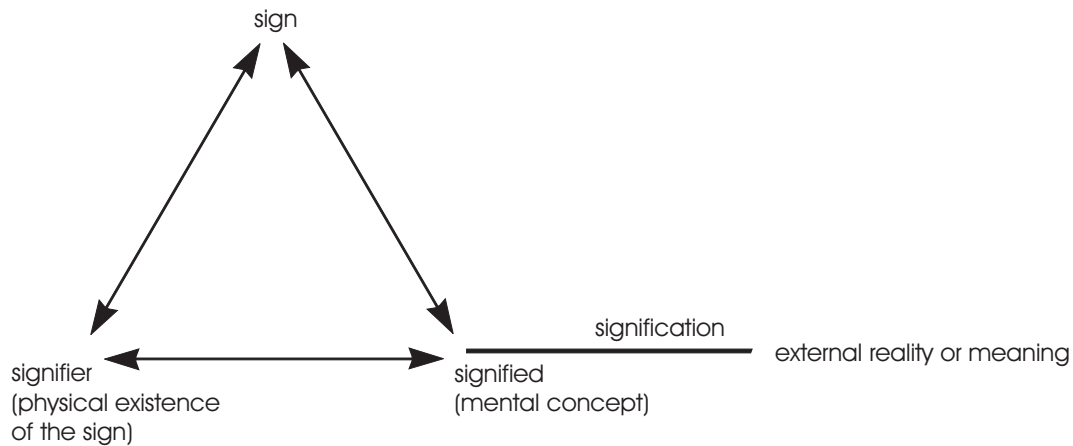


Figure 10. de Saussure's elements of meaning  
(Fiske 1990:44)

According to figure 10 three concepts can be distinguished: sign, signifier, and signified. In brief, the figure can be explained as representing a sign, which is a physical object with a meaning. This explanation has resulted in suggestions that de Saussure's figure is actually a triadic figure (Nöth 1990). For example, Barthes (1983a) says that the signifier not only expresses the signified, but that all semiological systems involve the three concepts above. Accordingly, Barthes (1983a:97) says that the sign is the 'associative total' of the signifier and signified. However, Nöth (1990) argues that the sign should be regarded as a superordinate concept, which consists of two parts: the signifier and the signified, in accordance to the original figure by de Saussure.

Figure 10 also includes the concepts of signification and external reality. Apparently signification by de Saussure (1959:67,114) refers to the 'object' by Peirce. Contrary to what was emphasised by Peirce, de Saussure was not actually interested in the object to which the sign refers (Eco 1977). Fiske (1990:44) points out that de Saussure argued that a sign is 'an apprehension of external reality', and that the sign refers to reality only 'through the concepts of the people who use it'. But as said, de Saussure was more interested in the sign – sign relation (Mick 1986), which means that the connection between the sign and the external reality or signification is less discussed in the literature by de Saussure.

The sign relation by de Saussure can be exemplified as follows. If the letters G, R, E, E, N are read as a word, the letters become a sign. The signifier is the visual appearance of the sign, and the signified is the mental concept of the colour in question that is created in the mind of the receiver of the sign.

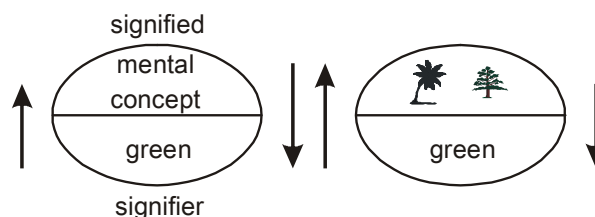


Figure 11. Examples of de Saussure's dyadic sign figure  
(Adapted from de Saussure (1957:67))

It is easy to understand that signifiers, such as verde, grun, grün, and vihreä, are linked to and dependent on the culture in question because of different languages. However, Fiske (1990) points out that the signifieds are as much as signifiers dependent on the culture in question. This means that a person living in a surrounding with coniferous trees may have a different mental green than a person living in a rain forest. As pointed out previously, my perception of blue is hardly the same as yours.

As said, according to de Saussure (1959), the relationship between the signifieds and the signifiers is arbitrary, which means that there is no logical connection between these two entities. In other words, the word or the sign of GREEN stands for a specific hue, i.e. colour only because this is agreed upon in the culture in question. This means further that the relation between the signifier and signified is not only arbitrary, but conventional as well (Eco 1977).

### Peirce<sup>21</sup> and semiotics

Peirce also used the concept of relation to explain the sign processes. According to semiotics, the sign is a triadic relation, and Peirce called this relation semiosis (Peirce 1998b). Accordingly, semiosis means

*‘an action, or influence, which is, or involves, a cooperation of three subjects, such as sign, its object, and its interpretant, this tri-relative influence not being in any way resolved into actions between pairs’*  
(Peirce 1998b:411)

Thus, the basic elements of meaning suggested by Peirce are the sign, the interpretant, and the object. These three elements are illustrated in the triangle below.

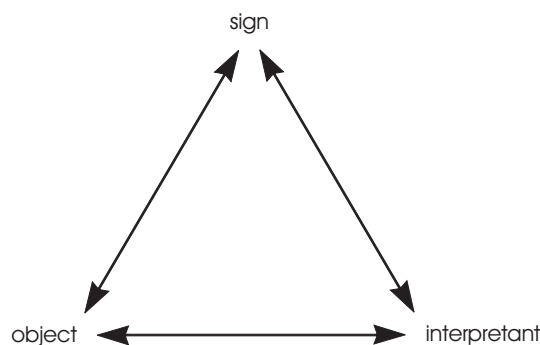


Figure 12. Semiotic triangle by Peirce  
(Fiske 1990:42)

The concept of sign is sometimes replaced by the concept of the representamen. This can be confusing, as it seems that Peirce himself used the concept of signs and representamen synonymously (see, for example, Peirce 1998b:171,272). The figure by

<sup>21</sup> In this study many secondary references are used to refer to the works by Peirce. On the one hand, this is due to the fact that his initial works are found as collected papers, edited by others. On the other hand, the present study is not a study into the philosophy of semiotics per se. Reliability has been achieved by double checking statements in various references.

Peirce is a triadic entity consisting of the element of a sign. However, the sign is also a superordinate concept of the triangle, which basically means that the semiotic triangle also characterises a sign. Peirce has explained the relations in the triangle as follows

*'A **Sign**, or **representamen**, is a First which stands in such genuine triadic relation to a Second, called its **Object**, as to be capable of determining a Third, called it **Interpretant**, to assume the same triadic relation to its Object in which it stands itself to the same Object The triadic relation is **genuine**, that is, its three members are bound together by it in a way that does not consist in any complexus of dyadic relations.'*  
(Peirce 1998b:272)

The elements in figure 12 are closely related to each other, and the figure can only be understood when all the three elements are present. This is also emphasised by the double-ended arrows in the figure. Peirce has also defined that

*'A sign is in a conjoint relation to the thing denoted and to the mind'*  
(Peirce 1998a:225)

The close relation between the three elements may be a possible reason why Nöth (1990) claims that it would be more proper to define semiotic studies as the study of semiosis than to state that the sign is in focus in semiotic studies.

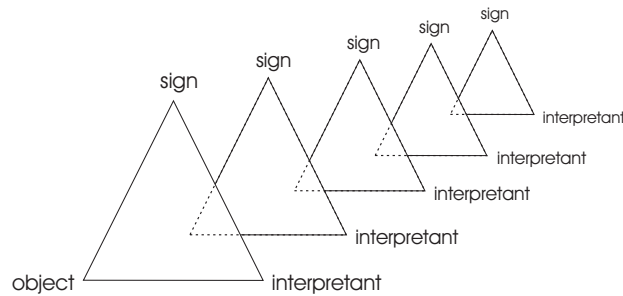
Figure 12 illustrates the idea that the observable sign represents the object. In other words, the sign stands for something else than itself. It is postulated that the observable sign can be compared to the signifier presented by de Saussure (Dingena 1994). As said, in contrary to de Saussure, Peirce also emphasised the object, or the external reality. As said, according to Peirce (1998a) the object is something that the sign refers to.

The object is also defined as something tangible and real, or something intangible and mental, possibly based on our imagination (Dingena 1994; Nöth 1990). The outcome of the interpretation of the sign is a meaning in the mind of the receiver. This meaning is called the interpretant. It is important to realise that Peirce did by no means intend that the interpretant is the person interpreting the sign (Dingena 1994; Fiske 1990). Dingena (1994) states that the interpretant or the mental concept or what she also calls the *'receiver's reaction'* to the signs, can be compared with the signifieds presented by de Saussure.

The elements by Peirce can be exemplified by a picture of a rose. The picture of the rose is a sign which represents a real flower. The interesting issue is evidently the interpretations made by the receiver, and the mental concepts or meanings that are created. The rose may be interpreted as an actual flower or perhaps weeds, or even as something more abstract such as love or passion. The interpretation of the flower is though not only dependent on the flower itself but on its colour as well. Undoubtedly the interpretation of the sign is also dependent on such context as culture.

An interesting notion is that Eco (1977) implies that according to Peirce the interpretation of a sign is not limited to a specific semiosis. This means that the interpretant of one sign creates the representamen of a second sign, and as a result there is an unlimited number of semiosis.

This can be illustrated with the following picture.



*Figure 13. An applied picture of the continuous process of semiosis by Peirce*

Figure 13 illustrates that one sign and its interpretation may lead to another sign and interpretation, simultaneously as also the object changes at the same time. It can be claimed that this is comparable with a dialogue, which means that one thought always leads to another. According to Eco (1977) the result is an uninterrupted chain of cultural units<sup>22</sup>, although Nöth (1990) suggests that Peirce indicated that the continuous process of semiosis could be interrupted, but it can never really be ended.

### 3.1.1 Differences between the schools of semiotics and semiology

As noted, the two schools are found to disagree on several matters. Hoolbrook (1987) studied the differences between the two schools regarding research on consumer behaviour. A summary of his study is presented in the following figure.

<sup>22</sup> Eco (1977:66) defines that a term is a cultural unit, and accordingly a unit is ‘*anything that is culturally defined and distinguished as an entity*’. A unit is exemplified as a person, place, thing, colour and so on.

*Table 1. Differences between semiotics and semiology*  
(Hoolbrook 1987:84)

SEMIOTICS	SEMIOLOGY
<b>AIMS</b>	
Focus on <i>ALL KINDS OF SIGNS</i> : icons (e.g. pictorial art) indices (e.g. music, dance) symbols (e.g. conventional language)	Focus on <i>COMMUNICATION</i> : via symbols organised into languages and codes (e.g. food, clothing, furniture, high art, pop culture, myths, rituals)
<b>CONCEPTS</b>	
a <i>TRIADIC</i> relation: a sign (icon/index/symbol) an object (designatum) an interpretant (disposition to respond)	a <i>DYADIC</i> relation: a signifier (form, expression) and a signified (concept, content)
Inclusion on the <i>OBJECT</i>	extends the dyadic scheme to multiple levels of meaning (involving connotation and metalanguage)
encourages positivism emphasis on denotation	
<b>METHODS</b>	
the positivistic bias	the postpositivistic bias toward interpretation
emphasises the pragmatic aspects of semiosis found in its interpretants involving behavioral responses of sign users	emphasises the semantic and syntactic aspects of multiple levels of meaning

Hoolbrook (1987) summarises the differences by referring to Charles Morris (1946):

*‘Semiotics tends to adopt a positivistic approach to the study of pragmatic effects involving conventional verbal language or responses to nonverbal artistic creations such as music and painting.’*

(Hoolbrook 1987:84)

and by referring to Pierre Guiraud (1975):

*‘Semiology tends to focus on the structuralist interpretation of symbolic codes and often considers the nonartistic artifacts of pop culture or everyday consumption whose multilevel meaning may not be consciously intended to communicate but which nevertheless play that role within society.’*

(Hoolbrook 1987:84)

According to the table above, semiotics focuses on signs, which also include classification of different types of signs. Semiology, on the other hand, focuses on communication, which in this case means that it is closely related to the issue of language and to the notion of codes.

The table also suggests that semiotics is linked to studies on pragmatic aspects of semiosis, whereas semiology emphasises the syntactics as well as the semantic aspects of meaning on multiple levels. These issues can be explained by the terminology presented by Peirce, according to which studies on the pragmatic level are about the sign – interpretant relation, syntactics is about the sign – sign relations and studies on semantic issues focus on the sign – object aspects. Mick (1986) supports Hoolbrook in the sense that he states that Peirce is linked to pragmatics and de Saussure is focused on the syntactics aspects. However, Mick argues that semantics is the ‘traditional’ emphasis.

Concerning semiology, Hoolbrook (1987) argues that because semiology is particularly interested in texts, the focus within that school is on the interpretation of texts and on their multiple levels of meaning. This means that the notion of connotation and metalanguage belongs here. The denotative meaning is defined as the simple relation between the signifier and the signified, whereas higher levels of meaning involve connotation. When multiple meanings are studied, the denotative sign becomes a signifier or a signified metalanguage on the next level (Hoolbrook 1987). Metalanguage is defined as a language about a primary language (Nöth 1990) or as a second language ‘*in which one speaks about the first*’ (Barthes 1983a:100). For example, feminism is an example of a metalanguage (Barthes 1983a). Louis Hjelmslev (1899-1965) originally defined the concept of metalanguage, and he indicated, according to Nöth (1990), that ‘*every grammar is a metalanguage, because it describes a natural (object) language*’.

Obviously, it is not very evident what the differences between the two schools are. First of all, it can be implied that the multiple levels of meanings of semiology have many similarities with the continuous processing of semiosis of semiotics. Second, it can be claimed that it is hard to find support for the statement that semiotics focuses primarily on the denotative level of meaning. On the contrary, it is implied that the school of semiotics focuses on the connotative level too (Fiske 1990). This is supported by a study by Vihma (1995) in which she refers to the school of semiotics by analysing design products at a connotative level. Further, it is argued that semiology was originally only interested in the simple relation between the signifier and the signified (Fiske 1990). Third, the notion that semiotics encourages a positivistic methodology is not supported, and Mick et al. (1999) argue, on the contrary, that no evidence for such a notion can be found.

Finally, it can be mentioned that Nöth (1990) postulates that semiotics can be considered as a main field and as a general concept, in which semiology is one of its subfields. However, this suggestion can be further commented on, as it seems that the concepts of semiology and semiotics are commonly regarded as synonymous today.

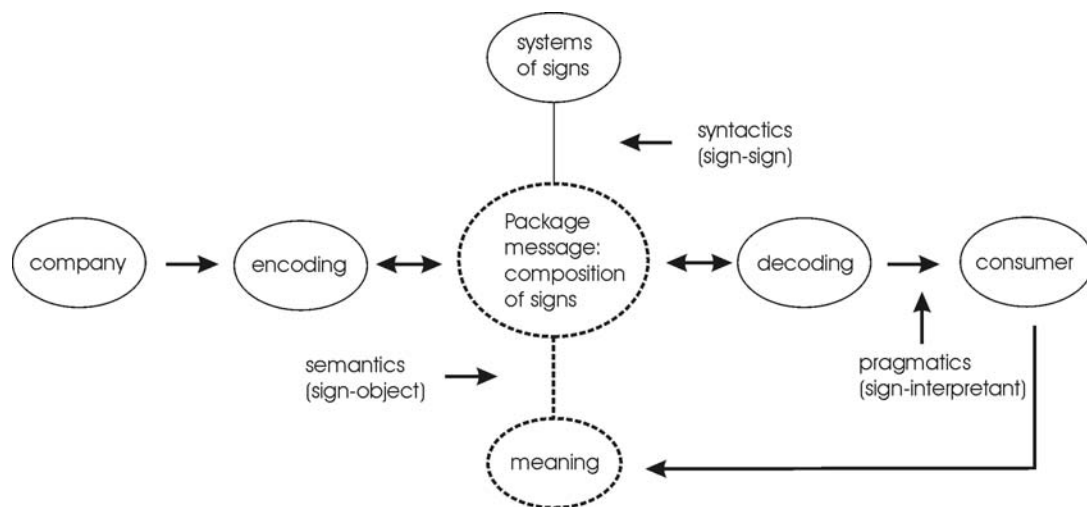


### 3.2 SEMANTICS, PRAGMATICS AND SYNTACTICS

According to Morris (1901-1979) three fields of research can be detected within semiotics (Morris 1938; 1946). They are based on a dyadic relation focusing on two of the following concepts: sign, object, interpretant. This means that the following relations can be found:

- sign – sign
- sign – object and
- sign – interpretant

These relations constitute research fields, and the fields are referred to as syntactics, semantics, and pragmatics.



*Figure 14. Semiotics and the marketing communication process*  
(Adapted from Dingena 1994:13)

The figure above illustrates where the three fields of semiotic analysis can be located in the two-way communication model (figure 5) presented earlier. When it concerns the three concepts of message, sign, and meaning, it can be concluded that figures 8 and 14, in fact, support each other. As the figure highlights, the focus in this study is on how messages that are composed of signs create meanings.

#### 3.2.1 Colour syntactics

Studies on *syntactics* focus on the sign – sign relation, which means that the relation of signs to other signs is in focus. Syntactics is defined as

*‘The study of the formal relations of signs to one another.’*  
(Morris 1946:218)

A further definition of syntactics studies is that it focuses on the ‘*combination of signs*’ (Morris 1946). According to Nöth (1990), the concept of syntactics has been replaced by the concept of syntax within linguistics, where the concept means ‘*the study of the rules for combining words*’ (Nöth 1990). Although Nöth (1990) argues that this is merely a disagreement of the use of terminology, he states that syntactics indicates a broader dimension of study. This means that syntactics is not limited to words, i.e. verbal, language signs. Dingena’s (1994) definition of the field of syntactics supports this.

Dingena (1994), who has studied advertisements, states that syntactics is basically about the structures of messages. When it comes to advertising research, the interest in semiotic studies concerning syntactics is in examining the order of words in messages or how messages are conveyed through focusing on the relation between verbal and non-verbal signs, for example (Dingena 1994). The focus may also be on examining metaphors, or the structure of other types of rhetorical figures.

When it comes to colours, it can be implied that syntactics of colours means the relation of colours to other colours. This relation can be linked to the discussion by Danger (1987a; 1987b) on colour systems and colour harmony.

Colour systems indicate rules of colours that are based on a logical order. One of these rules is the colour order system by Albert Munsell. This system specifies various colours and shows the logical relation between the colours due to their hue, value, and chroma (<http://www.munsell.com>). This system can be compared with grammar, in which the relations of words to other words are explained by logical rules. Thus, when colours are organised according to logical rules it can be claimed that they have similarities with dictionaries. Evidently, colours are not organised verbally according to the alphabet, but according to their visual expression (Caivano 1998). Accordingly, expression is linked to the organisation of colours according to hue, value, and chroma. The concept of expression is defined by Hjelmslev, and in his definition, expression corresponds broadly to the signifier by de Saussure and content means signified (Hjelmslev 1970).

Colour harmony, on the other hand, indicates colour combinations based on aesthetic grounds. According to Danger (1987a; 1987b) attractive colour combinations are gained by using opposite colours, for example. In fact, it is stated that by using opposite colours one can create colour schemes that have high contrast, are brighter, and more vivid. Red and green, or blue and orange are examples of opposite colour combinations. In fact, it is claimed that, for example, the combination of red and green, is also perceived to be a positive combination (Danger 1987a; 1987b). However, not all oppositions are found to be in harmony. For example, such opposite colours as yellow and violet are found to be a combination of less harmony, and this combination is not perceived as positively as some other combinations. Obviously, the issue of colour harmony is foremost a subjective issue, although various rules for colour harmony have been suggested, such as the use of opposite colour combinations (Caivano 1998; Danger 1987a; 1987b).

However, colour syntactics not only means colour – colour relation, i.e. the relation of some colours to other colours, but it can be postulated that it also means colour – shape,

or colour – font relation, i.e. the relation of colours to other package signs. For example, Kawama (1987) found that colours and words are related. According to Itten (1970) a relation can be found between colours and shapes. Itten (1970) suggests that a positive relation between these two signs exists when their expressions support each other. As a result, an additive effect is gained. This means, on the one hand, that when a colour is decisive, the shape should be developed according to the colour. On the other hand, when the shape determines the expression, the colour should be considered in respect of the shape. In order to exemplify the above, Itten (1970) postulates that the colour of red indicates the shape of a square, yellow is associated with the shape of a triangle, and blue means the shape of a circle.

It appears that studies on colour syntactics are few, particularly when it concerns the colour – colour relation (Sivik and Hård 1994). This may be due to the fact that the possible colour combinations are many. For example, colour combinations based on the colour wheel results in 64 different dyadic colour combinations.

### 3.2.2 Colour pragmatics

The second field within semiotic studies is called *pragmatics*. Originally, Morris in 1938 defined pragmatics as being involved with ‘*the study of the relation of signs to interpretants*’ (Morris 1946:217). This definition was later refined to stand for

‘*The portion of semiotic which deals with the origin, uses, and effects of signs within the behavior in which they occur.*’  
(Morris 1946:219)

Basically, pragmatics focuses on the relation between the sign and the interpretant. Dingena (1994) points out that a sign is dependent on the receiver, and it has a communicative value only if it is observed, interpreted, and if it is given a meaning by somebody. In fact, Lindberg-Repo (2001) and Finne (2004) point out the consumer point of view in understanding meanings. Dingena (1994) states that within research on advertisements the focus of pragmatic studies is on examining different forms of generation of meaning in messages. She says that the studies deal with cognitive processing, i.e. on studying how advertisements are understood, and on examining the formation and revision of beliefs and attitudes toward advertisements.

It can be suggested that colour pragmatics focuses on the relation between the colour and the interpretant. Caivano (1998) postulates that colour pragmatics deals with such issues as the function of colours in their natural and cultural environment. Colour pragmatics may also deal with identification, such as identification of food by its colour. Caivano (1998) links the issue of identification to surviving and food gathering. Furthermore, Caivano (1998) postulates that colour pragmatics is about the physiological and psychological impact of colours, and the impact of colours on behaviour. The previous issues can be exemplified by the impact of colours on the productivity of employees, the impact of colours on animal behaviour, and the impact of colours on the legibility of verbal signs.

The present study maintains that past research within psychology on such issues as colour preferences as well as the affective value of colours are linked to the issue of colour pragmatics. When it comes to previous studies conducted within marketing it can be implied that colour pragmatics involves such issues as colours as a means of attention and the studies on behaviour-centred communication. In other words, studies on colour pragmatics within the field of marketing are about the physiological and psychological impact of colours on consumer behaviour. The last issue involves both the affective value of colours as well as the cognitive impact of colours on attitudes. The pragmatics of colours can be exemplified by the findings concerning the impact of colours on consumers in a specific surrounding, such as a retail store. Thus, it is claimed that cool colours such as blue and green have a calming impact on the behaviour, whereas warm colours such as red, orange, and yellow have the opposite impact (Kwallek et al. 1988; Belizzi 1983; Nakshian 1964).

To conclude, it can be claimed that studies within psychology are closely linked to the field of colour pragmatics. This means that colour pragmatics mainly focuses on the impact of colours on the mind and the behaviour of the receiver, such as a consumer. In accordance with the previous studies on colours within psychology, it can be claimed that colour pragmatics also involves such issues as the gender, age, race, and personality of the receiver.

### 3.2.3 Colour semantics

Semantics is defined as

*‘The study of the relation of signs to the object to which the signs are applicable.’*  
(Morris 1946:217)

This definition indicates that semantics is about the sign – object relation. Morris (1946:219) broadens his original definition of semantics from 1938 to deal *‘with the signification of signs in all modes of signifying’*. This means according to Nöth (1990) that the definition also covers the meaning which is created by the sign – object relation.

Some notions on semantics can be made. The first concerns the concept of sign. Thus, it can be implied that because Morris was one of the successors of Peirce, the concept of sign has a broad meaning within semantics. In fact, Morris (1948) claims that the theory of sign is the study of any sign, which ranges from language to animal communication. The second notion concerns the concept of semantics. It is, on the one hand, claimed that semantics is connected with linguistics. On the other hand, it is referred to as one of the fields of semiotics (Nöth 1990). As a result, semantics is, first of all, defined as a field within linguistics, which focuses on the study of meaning in language, and, secondly, as a field within semiotics, which focuses on the study of semiotic sign systems (Nöth 1990).

Nevertheless, in this study semantics is referred to as the sign – object relation. Dingena (1994) specifies that semantics emphasises the meaning of messages, with a specific interest in the object. In semantics, meaning is emphasised, and this means that two

levels of meaning can be distinguished, i.e. the connotative and the denotative level of meaning. When it comes to research on advertisements it is stressed that advertisements can be analysed according to these two levels of meaning.

In colour semantics, the colour can be regarded as a sign that constitutes the ability to represent or signify something else than itself. Caivano (1998) stresses the concept of substitution by maintaining that the sign possesses the ability to substitute different things. This means that the non-verbal sign of colour can be used instead of a verbal sign. As a result, research on colour semantics deals with issues related to colour associations and the impact of the context.

This study maintains that past research within the fields of marketing and psychology that is linked to the colour semantics focuses, first of all, on colour associations. Second, those studies within marketing in particular that focus on message-centred communication are concerned with colour semantics. This means that the relation between the colour and the object can explain the meaning of colour, such as colour association.

Some further notions can be added to the previous discussion of organising colours according to logical rules by expression and content (Caivano 1998). While expression means the visual aspect of colours, the content is related to the meaning the colour sign in question conveys. This means that colours are organised according to their semantic level as well. This is due to the fact that colours that have a similar expression also tend to convey similar meanings. Thus, it is claimed that such colours in the colours wheel (figure 6) as yellow, orange, and red convey warmth, while blue, turquoise and green are stated to convey the meaning of coldness (Caivano 1998). In other words, the two colour groups have comparable expressions and they convey similar meanings.

### 3.2.4 Reflections on the perspective of semiotics in this study

In order to clarify the perspective of semiotics in this study, some reflections are made on how this study applies semiotics.

To begin with, this study assumes that semiotics is basically an approach that offers concepts to the understanding of various marketplace phenomena. As can be recalled, the literature refers to it as a methodological issue (Beckmann and Elliott 2000), a method (Berger 2000), and a theory (Nöth 1990).

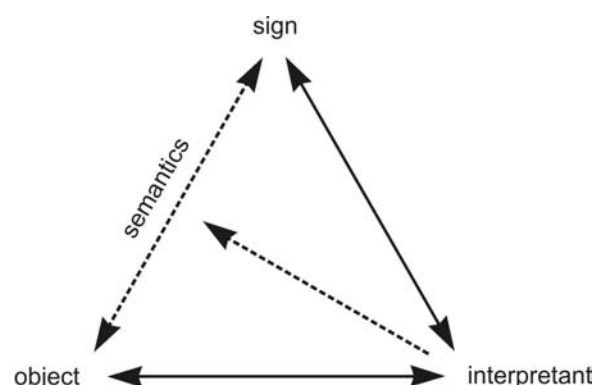
Before the perspective is clarified, it is important to note that this study refers to both schools of signs. This means that this study applies concepts that have their origin in the school of semiotics as well as in the school of semiology, although the study uses the concept of semiotics when referring to the school of signs and the approach applied in this study.

To begin with, it must be pointed out that this study is based on the triadic sign relation suggested by Peirce, i.e. on the relation between the elements of sign – object – interpretant.

When it comes to the three fields of research discussed previously and their dyadic relations concerning the sign – object – interpretant some comments are made in order to locate the present study. Basically, it can be argued that the borders between the three fields are not very obvious. This means that a study may focus on the sign – object relation, although aspects of the sign – interpretant relation may be included in the study. Thus, it can be claimed that the three basic elements in the triadic sign relation are always present, although a study focuses on two of the elements. This can be exemplified by previous studies conducted within psychology, although they do not apply semiotics. Thus, a colour study on colour preferences from a syntactics point of view involves studies where a number of colours are ranked in relation to each other without noting the interpretant. Consequently, the focus is on the sign – sign relation. However, if the person behind the ranking is included in the evaluation of the rankings with such characteristics as age (e.g. Garth and Poster 1934), nationality (e.g. Shen 1937), and gender (e.g. Child et al. 1963) the sign – interpretant relation is in focus. Further, when the study on colour preferences is linked to a specific object, such as clothing as in a study by Lind (1993), colour semantics is in focus. Concerning past research within psychology on colour associations, it can be claimed that those colour studies that are conducted without referring to a specific context or object are about colour pragmatics. It can be claimed that the studies by Karp and Karp (1988) and Murray and Deabler (1957) are about colour pragmatics as they focus on colour associations by investigating differences due to such characteristics as age and gender. Further, if a study on colour association is linked to a specific context or object, it can be defined as a study on colour semantics.

When it comes to previous studies applying the semiotic approach within the field of marketing, e.g. studying the phenomenon of advertising, it is claimed that the studies are mostly about the syntactics structure and the semantic content of advertisements (Dingena 1994). This means that the pragmatic view is neglected. It is further stressed that when the psychological perspective is in focus, i.e. how consumers react to the message, the notion of the structure and the levels of meaning are absent from the studies (Dingena 1994).

The focus of the present study can be illustrated as in the figure below.



*Figure 15. A semantic study including a pragmatic aspect*

The figure aims at illustrating that it can be implied that the present study focuses on the semantics aspects of colours with the aspects of pragmatics included.

This is motivated as follows. First of all, the current study investigates whether colours have an impact on decision-making. This means that a reaction or a response of the consumer concerning the impact of colour is investigated. The fact is that this study is not interesting in the characteristics of the subjects of the study. However, in some respect it can be suggested that the study investigates the sign – interpretant relation according to a pragmatics point of view as a research question was posed concerning the impact of colours. However, the main focus in this study is on the semantics of colours, which means that the study emphasises the sign – object relation. The focus on the semantics of colours means that the study investigates whether the impact of colours is related to the context, in which the context is referred to as a product class. The focus on the sign – object relation is in fact strengthened by posing a question concerning how an analysis of the sign – object relation could be carried out in order to increase the understanding of the impact of colour on behaviour. This means that the sign stands for the colour and the object stands for the core product. In other words, at this stage the sign – object relation is also referred to as a colour – product relation.

In order to analyse the sign – object relation, the various types of signs that are based on that relation become essential. Peirce originally defined these different types of signs, and he postulates that the relation creates three types of signs, which are further clarified below.

Finally, as the concepts of sign and meaning are suggested to be two essential concepts within the science of signs, a perspective on the concept of meaning is presented below as well. This is made by discussing various aspects of meaning according to Hjelmslev and Roland Barthes, who are commonly referred to as successors of the school of semiology. This discussion includes the concepts of denotative and connotative levels of meanings.

### 3.3 THREE TYPES OF SIGNS

It is maintained that signs convey meaning in different ways, and there are some differences in how this is explained by de Saussure and Peirce.

It was argued by de Saussure that the relationship between the signifier and the signified is arbitrary. This means that a word has a meaning only because that it is agreed upon. However, the signifier and the signified can also be related to each other, because there is a resemblance between the two elements through sound or visual appearance (de Saussure 1957).

Peirce, on the other hand, made a distinction between different signs and their meanings by classifying signs based on the dyadic relation discussed previously. Accordingly, these relations are referred to as the

- first trichotomy (sign – sign relation)
- second trichotomy (sign – object relation), and
- third trichotomy (sign – interpretant relation).

Following the fact that this study focuses mainly on the sign – object relation, those types of signs that result from the second trichotomy are discussed, i.e. the signs of icon, index, and symbol. Accordingly it is stated that this trichotomy of Peirce is

*‘The most fundamental division of signs.’*  
(Nöth 1990:44)

### 3.3.1 Iconic sign

Basically, iconic signs can be referred to as signs that indicate similarity and resemblance. The iconic sign is defined in various ways, but it appears that all the definitions support each other. Thus, an iconic sign is defined as a sign, which

*‘Serve to convey ideas of the things they represent by imitating them.’*  
(Peirce 1998b:5)

In addition, Peirce has stated that an icon is

*‘A sign which stands for something merely because it resembles it.’*  
(Peirce 1998b:226)

Further, Hoolbrook (1987) implies that

*‘Icons share characteristics in common with their designatum.’*  
(Hoolbrook 1987:84)

According to Dingena (1994), icons are concrete, which the last definition above, in fact, implies. However, Peirce (1998) defines that, as algebraic formulae and diagrams are iconic, it can be claimed that iconicity means that the relation between the sign and the object is abstract as well. Accordingly, the resemblance in abstract relations is not as much in the visual appearance, but mainly in the

*‘Relations of their parts that their likeness consists of.’*  
(Nöth 1990:122)

Most commonly iconic signs are acknowledged as portraits, paintings, drawings, photographs, and maps. This means that a photograph of a friend, a drawing of a building, and a statue of a historical person are examples of icons. According to Fiske (1990), such common visual signs on lavatories denoting gentlemen and ladies are signs which also relate to their object in an iconic way. Iconic signs can also be perceived by other senses than the eye, such as smell and sound. Fiske (1990) suggests that perfume may indicate sexual arousal by bearing a resemblance to animal smell. On the other hand, music may bear a resemblance to animal sounds. In addition to non-verbal signs, an iconic sign may be expressed as a verbal sign. Dingena (1994) exemplifies this with the statement that onomatopoetic words such as ‘cuckoo’, ‘meow’ and ‘sssh’ convey meaning as iconic, verbal signs.



### 3.3.2 Indexical sign

An index is a sign, which is directly related to its object. Peirce defines it as follows

*‘Indices<sup>23</sup>, which represent their objects independently of any resemblance to them, only by virtue of real connections with them.’*

(Peirce 1998b:461)

According to Dingena (1994) an indexical sign indicates that the sign is related to the object, for example, through association. It is also suggested that an indexical relation exists when there is a belief that a real relation exists between the sign and the object.

Fiske (1990) exemplifies the indexical relation by smoke, which is an index of fire. Further he suggests that sneeze is an index of having a cold. Dingena (1994) discusses the relation further with the examples of sweat, which she says is an index of body heat, and of a knock on the door, which is an index of somebody being present.

Indexical relations are often found in advertisements. Dingena (1994) maintains that indexical sign – object relations in advertisements are between the product and certain objects, persons or occasions. This can be exemplified by happy and so-called healthy people, who can be claimed to be indexes for food and beverages. Thus, in an advertising context it can be postulated that advertisements suggest that by using the product in question you become/stay happy or healthy.

### 3.3.3 Symbolic sign

The third category of signs is the symbol. This is perhaps the most obvious type of signs. In general, a symbol is regarded as a sign that has no logical relation to its object.

Peirce defines a symbol as follows

*‘Symbols, which represent their objects, independently alike of any resemblance or any real connection, because dispositions or factitious habits of their interpreters insure their being so understood.’*


(Peirce 1998b:461)

Fiske (1990) specifies that in a symbolic relation the relation between the sign and the object is based on a convention, an agreement, or a rule. The meaning of a symbolic sign is based on a so-called tacit agreement between the sender and the receiver. Words as verbal signs can be regarded as one of the most obvious types of symbolic signs. As pointed out earlier, words are in general understood only because of mutual agreements.

The verbal sign ‘tree’ can be used to exemplify symbolic signs. This sign is understood to stand for something only because there is an agreement that the word refers to a

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<sup>23</sup> In the texts by Peirce (1998) index refers to a single sign, while indices indicates several indexical signs.

certain object, . The interpretation of the sign does not require the presence of the object.

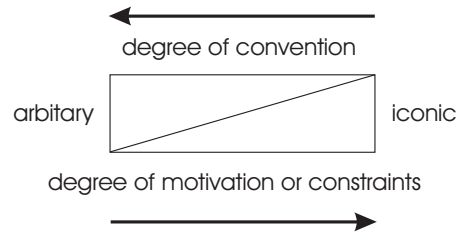
According to Dingena (1994) logos, trademarks, brand names, and flags serve as symbolic signs. These are evidently found on packages, in advertisements, as well as in the context of other marketing phenomena.

### 3.3.4 Multiple functions of signs

It is important to emphasise that a sign can have many functions. This multiple function can be exemplified by traffic signs, which often are a mixture of symbols, icons, and indexes (Fiske 1990). They are in general regarded as symbols as they are based on rules. However, they can be defined as icons as they may have a shape which has a direct resemblance to the object, to which they refer. The object can, for example, be a church, or a crossroad. Additionally, traffic signs may be regarded as indexes, as the icon of a church or a crossroad indicates that a church or a crossroad is soon to be reached. In other words, just as an indexical sign of a sneeze can be interpreted as a symptom of having a cold, a smoke as a symptom of a fire, the church on a traffic sign may be expressed as a symptom of a closely situated church.

The logo of the International Organisation of the Red Cross is another example of a sign composed of various types of signs (Kauppinen 1994). The logo is a red cross on a white background. First, the shape of a cross on the logo can be examined as an icon from many points of views. The appearance of the logo is based on the flag of Switzerland, with the exception that the colours are reversed. The flag originally aimed at resembling the country where the organisation originated. However, the sign of a cross involves other associations, as the cross can also have a direct resemblance to the cross sign of Christianity. This means that the cross can be seen as an iconic sign according to the meanings related to Christianity and worship. Second, despite the fact that the organisation declares its independence of religious standpoints, the sign may also be regarded as an indexical sign. As a consequence, the sign may be interpreted as an index of the aims of the organisation, such as working manners. This means that the sign would be related to such issues as humanity, for example. Third, it can be claimed that the logo in itself is a symbol of the organisation. It is interesting to notice that for the reasons mentioned above, the organisation has not only been forced to create a certain logo for the Muslim parts of the world, but a discussion has been conducted concerning the creation of a new logo which is free from associations to worships.

The two examples above indicate that the categorisation and the understanding of a sign are not very simple tasks. Fiske (1990) discusses arbitrary, iconic, motivation, constraint and convention to understand signs. These are illustrated in the figure on the next page.



*Figure 16. Scale of sign types*  
(Fiske 1990:56)

As Eco (1977) implies convention is a precondition for the understanding of any sign. In fact Fiske (1990) points out that communication in general requires convention. The concept of convention suggests some degree of learning, which is required in order to understand a sign. This means that a sign such as a map can communicate and be understood only if we have learned to ‘read’ it. In fact, it can be implied that convention is the social dimension of signs. Fiske explains the concepts of motivation and constraints with the elements by de Saussure. The concepts describe the degree to which the signified determines the signifier. Fiske (1990) exemplifies this with a photograph that in general is more motivated than an arbitrary sign such as a traffic sign. Thus, an arbitrary sign is less motivated. In other words, the more a sign is motivated the more the signifier is constrained or interwoven with the signified. This can be explained by a photograph of a man, which means that it can be postulated that the signifier, i.e. the photograph, has a great resemblance or constraints to the signified, i.e. the man. As a consequence, it can be maintained that the sign conveys resemblance, such as an iconic sign. In contrast, the less the sign is motivated, the more it is dependent on convention or the agreement of its users that it is a specific sign that conveys a certain meaning. This agreement is required in order to gain understanding.

The discussion suggests, in fact, that symbolic, indexical, and iconic signs should not be regarded as three separate types of signs. It is actually implied that the signs should be considered as a continuous scale on which the type of sign is defined according to the degree of convention and the degree of motivation and constraints (Dingena 1994). It can be postulated that this is true when it comes to colours as well. This indicates that the distinction between the different types of colours is not always evident. This applies particularly to the distinction of indexical and iconic colour signs, as well as the distinction of indexical and symbolic colour signs.

### 3.4 TWO LEVELS OF MEANING

The sign – object relation not only results in different types of signs but in different levels of meanings as well. Thus, signs not only convey different meaning concerning how they relate to their object, but a distinction is also made according to the level of meaning that they convey.

### 3.4.1 Denotation and connotation

The idea that a sign conveys meaning on multiple levels originates from Hjelmslev (Nöth 1990; Fiske 1990), especially his dichotomy of connotation; denotation has been developed further by many semioticians, such as Barthes (Nöth 1990; Fiske 1990).

Barthes illustrates his own view of the dichotomy with the figure below.

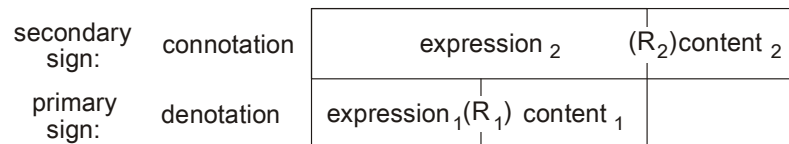


Figure 17. Two orders of signification by Barthes.  
(Barthes 1983b:30; 1970:211)

According to the figure a sign can be implied to consist of an expression (signifier) in relation to a content (signified). This relation constitutes a primary sign, and it can become an element in a secondary sign system, i.e. an expression of a secondary sign. As the figure shows the extension of the secondary sign is the content. Apparently, the primary sign is on denotative level and the secondary sign on connotative level.

Fiske (1990) has introduced a figure of Barthes' view on multiple levels of meaning.

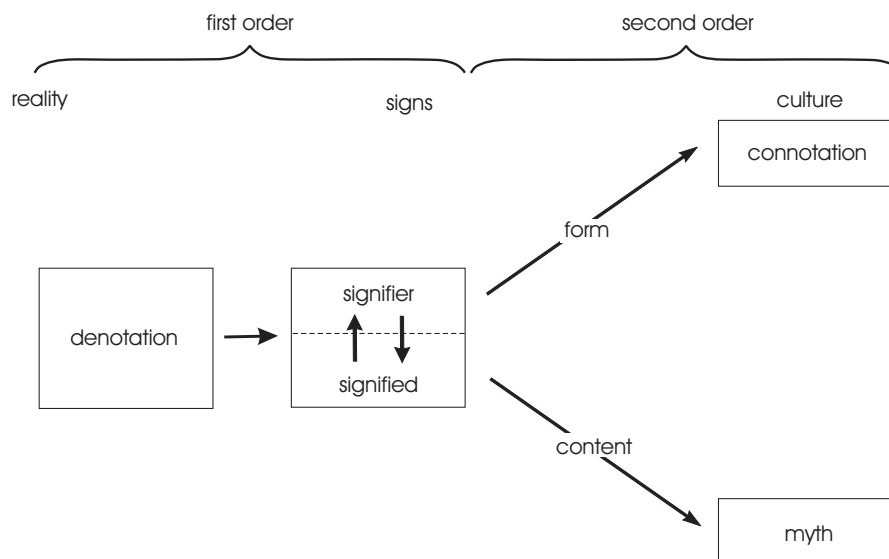


Figure 18. Two orders of signification by Barthes adapted by Fiske.  
(Fiske 1990:88)

The figure suggests, first of all, that *denotation* is the first order of signification. It refers to the real and concrete meaning of a sign. Fiske (1990) defines it as the obvious and common sense level. Dingena (1994) states that the denotative level is the literal meaning of a sign, which is directly recognisable and identified. Barthes (1982) refers to a denoted message as being the '*analogon itself*' (1982:17), and he says that the issue of 'objectivity' can be related to the concept.

*Connotation* can be said to refer to the ‘underlying’ and abstract meanings of denotation. Barthes (1992) exemplifies connotation by saying that it refers to meanings that are not found in dictionaries. According to Fiske (1990), connotation involves a human aspect in the production of meaning. As can be recalled, the notification of the context, such as the culture, is claimed to be essential in communication studies. This fact is illustrated by the figure above as well. Thus, the figure shows that culture has particular significance at the second level of meaning. Fiske (1990) states that the meaning on this level is subjective, and that the interpretation of a sign is equally influenced by the person interpreting the sign, as well as by the sign and the object. In conclusion, it can be implied that the connotative meaning is the outcome of the relation between the object and the sign, including the human aspect, such as the emotions and feelings of the interpreter in addition to the context.

According to the figure, connotation is in fact only one of the two main ways in which a sign works on the second level. As Barthes (1970) was particularly interested in stories, the figure suggests that myth is the other. In fact Barthes has stated 1983 that

*‘But myth is a peculiar system, in that it is constructed from a semiological chain which existed before it: it is a second-order semiological system.’*  
(Barthes 1983a:99)

The present study implies that as denotation and connotation are usually expressed as the two main levels of signification, it can be argued that myth is the outcome of the interpretation of signs conveying connotative meaning.

Barthes (1984) explains the difference between the two levels of meanings by referring to photographs. The original thought by Barthes is exemplified by an example given by Fiske (1990). The object is an urban street, which is photographed in different ways. The photograph may, for example, have been taken during the office hours, with cars passing and adults rushing along the street. The photo may also have been taken on a colour film, using a soft tone and including children playing in the street on a sunny day. Furthermore, it may be taken on black-and-white film, with hard focus, and strong contrasts and, by using other effects, make the environment look inhuman and cold. Evidently, the denotative meanings of these photographs are the same, which means that they denote the actual street. Thus, these photographs differ in their connotative meaning. The meanings involve the interpreter’s emotions and feelings, and in order to convey different meanings, some sort of convention is required. It can be argued that denotation is what is photographed, whereas connotation is linked to how the photo is photographed (Barthes 1984). To sum up, the last issue provides understanding of why different meanings are conveyed and why various associations are made.

### 3.5 PAST RESEARCH APPLYING A SEMIOTIC APPROACH

Past research applying a semiotic approach on consumer issues has been conducted on such phenomena as art, entertainment, and leisure, advertisements, clothing, consumption environments, products and packaging, and culture and consumption (Mick et al. 1999).

The studies focusing on products and packaging can according to Mick et al. (1999) be classified into two main research areas:

- 1) packages as a semiotic medium
- 2) product and packaging aesthetics

The first research area includes the studies by Klapisch (1995) and Sherry and Camargo (1987) whereas the second area on product and packaging aesthetics, including other design issues, has been studied for example by Solomon (1988), Vihma (1995), Hoshino (1987), Kawama (1985, 1987), and Heilbrunn (1997). The studies are listed in Appendix 3.

The first area of research concerning *packages as a semiotic medium* is presented by studies by Klapisch (1995) and Sherry and Camargo (1987). Klapisch (1995) examines how meanings are expressed on packages of daily commodities, whereas Sherry and Camargo (1987) focus on the labelling on Japanese can beverages in establishing product identity.

The study by Klapisch (1995) examines how connotative meaning of the female body are expressed on the packages of two feminine products: napkins and tampons. She analyses packages according to three levels of meaning: the functional, the anthropological, and the marketing level of the package. She distinguishes between the physical and the technical characteristics of the package, their socio-cultural representation, and packages as a means of communication. She argues that the taboo linked to the products and menstruation in general influences especially the socio-cultural and marketing level of meaning. Additionally, Klapisch (1995) states that the meaning evoked within the two product classes differ especially on the two levels mentioned above. Napkins are communicated symbolically on the packages with signs of flowers, birds, and waves. Klapisch (1995) claims that the previous signs communicate women as romantic, regressive, and virginal persons. Packages of tampons, on the other hand, consist of signs referring to the product itself, instead of abstract signs referring to the user. However, it seems that new codes are gradually presented in the context of napkins. This means that the previous clinical signs and codes of whiteness, pale colours, and discretion are slowly being replaced by brighter and more joyful colours, and with more pleasant symbols. In communicating the body, this means that the overall meaning expressed on packages of napkins regarding the seriousness and sickness of the body during menstruation is changed to imply something natural and even pleasant.

Sherry and Camargo (1987) interpreted the labelling on Japanese can beverages in establishing product identity. They found four types of writing styles in Japanese labelling. They focus on cans written in *romaji* script, which means English loanwords. This style means that loanwords are written in roman letters, such as 'bread', which becomes 'bu-re-di' and 'my family' is 'mai famiree'. They find that many themes are represented on the labelling, such as salutation, invitation, and boasting. The study concludes that the use of loanwords indicates a change in the Japanese culture. However, the use of loanwords is to be adapted to the local meanings, and there is an attempt to create something new in harmony with the traditional values and culture.

Neither Klapisch (1995) nor Sherry and Camargo (1987) base their study and analysis of packages on the conceptualisation provided by de Saussure or Peirce. However, the concept of semiotics is found on the labels of both studies. Klapisch (1995) analyses the meaning evoked by packages of napkins and tampons, and she discusses the link between the product and the signs on the packages, and the user. Thus, it can be argued that her analysis is based on an examination of packages from a multiple level of meaning and on semiosis. Sherry and Camargo (1987), on the other hand, discuss the connection between the labelling on the packages and the cultural values and meanings, and they also mention the denotative and connotative aspects of the labelling that they studied. Thus, it can be argued that their study is also based on an interpretation of packages from a multiple level of meaning point of view, and on semiosis.

The second research area consists of studies on *design issues on products and packaging from an aesthetics point of view*. Solomon (1988) analyses the design of cars focusing on the geometrical shape. Vihma (1995) analyses four design products: steam irons, exercise bicycles, telephone booths, and bicycle helmets. Hoshino (1987) presents a semiotic marketing method for the conceptualisation of products. Kawama (1985) analyses the decoding process of international signs, such as the sign for hospital, men's toilet, and telephone. Kawama (1987) focuses on the design process, and presents an experimental approach to that. Heilbrunn (1997), on the other hand, examines logos and the functions and structures of logos by using a semiotic approach.

Solomon (1988) analyses the design of cars focusing on shape. The analysis is based on the six functions<sup>24</sup> of communication proposed by Jakobson<sup>25</sup>. Solomon suggests that particularly two of the functions are interesting in their analysis of 'car messages' from a semiotic perspective: phatic and poetic. Phatic refers to the physical and the psychological link between the object (car) and the user (consumer). Legibility, recognition and memorability characterize this link. The poetic function stands for the aesthetics pleasure that the car design evokes. Solomon (1988) analyses car design by connecting the functions suggested by Jakobson with gestalt psychology, linguistics, and semantics<sup>26</sup>. Solomon (1988:215) suggests that her analysis is useful during the different product phases, such as development and testing. Also, colours are noted in the study. Solomon (1988) comments on the link between colours and the user by stating that colours are an important design element regarding the physiological, psychological, and sociological nature of colours. Additionally, she mentions that colours have an impact on how shape is perceived. Solomon (1988) suggests that the analysis not only provides information on the expectations of the manufacturer, but that it can also enhance the comprehension of the responses of the consumers.

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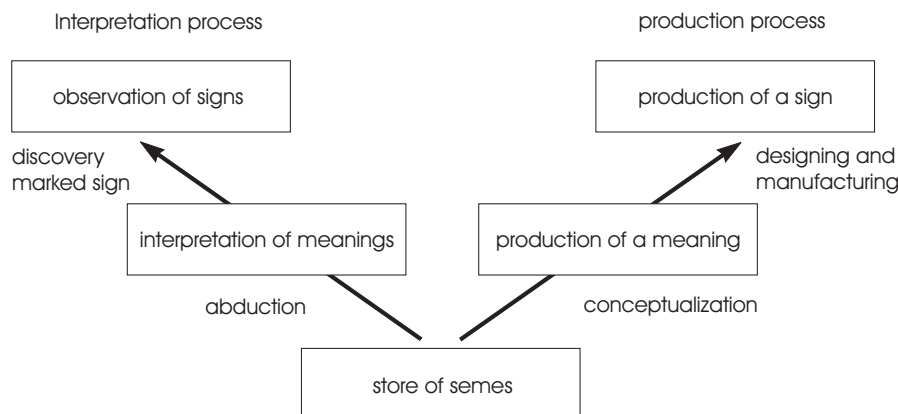
<sup>24</sup> The *phatic* and *poetic* are defined in the text above. *Emotive* = expressive function, conveys information about the sender. *Impressive* = conative, conveys information about the intended receiver. *Metalinguistic* focuses on the code in which the message is expressed (for example, IBM may be expressed as a 'pictorial eye' for I, 'pictorial bee' for B and the letter of M). *Referential* refers to the context of communication, such as the country in question. (Heilbrunn 1997:176-177).

<sup>25</sup> Jakobson (1892-1982) was a linguist, who made some important contributions to applied semiotics, such as music and theatre, although only a few of his writings were explicitly on semiotics. He was one of the first ones to introduce Peircean semiotics to linguistics (Nöth 1990).

<sup>26</sup> In this context semantics refers to the study of the science of meaning in language within linguistics.

Vihma (1995) analyses four design products: steam iron, exercise bicycle, telephone booth, and bicycle helmet. These consumer products are analysed according to the Peircean heritage, which means that they are examined according to the semantic perspective that focuses on the sign – object relations. This relation means that the iconic, indexical and symbolic aspects of the four products are in focus. Vihma notes the element of colour and states that colours may function as iconic or symbolic signs. They are iconic by referring to quality or weight. These are exemplified (Vihma 1995: 93) by the statement that ‘*a white stove is a clean stove*’ and that light colours indicate lighter weights. She claims that colours can function as iconic signs only when they are linked to the shape. In fact, it is argued that colour strengthens the shape. Vihma comments on the issue of colours as a symbolic sign by pointing out the impact of cultural context and learning. The outcome of the study is that it suggests that the interpretation of products as signs enhances the understanding of products. She makes a note that the analysis of verbal and non-verbal signs differs, and that the methods provided for analysing text are not directly applicable to analysing non-verbal signs. Thus, Vihma (1995) suggests that the information gained from semantic analysis of the intentions of products and designers could be combined with consumer studies, which she claims has been neglected in research.

In the study by Hoshino (1987), a semiotic marketing method for product conceptualisation is presented. The product conceptualisation is based on a semiotic structure of a product indicating that a product has a signifier and a signified with a denotative and a connotative meaning. The method suggests a combination of the interpretation process and the production process.



*Figure 19. Semiotic product conceptualising process*  
(Hoshino 1987:48)

The interpretation process is a sort of a marketing research process. First, the process indicates that the existing signs are observed in the market place. Observation is followed by interpretation of these signs. Semes is the result of the interpretation process, i.e. a sort of a database with a collection of interpreted meanings (Hoshino 1987). The aim of the interpretation process is to find the hidden or the latent psychological needs of the consumer. Abduction is suggested as a ‘method’ to interpret hidden meanings. This is the phase when the sender achieves understanding of the signs. The production process includes conceptualisation, i.e. the production of meaning and the designing and manufacturing of signs. The semiotic marketing method is



exemplified by the design of a word processor. The presentation of the method and the discussion in the research presented by Hoshino (1987) is based on the pragmatics defined by Peirce, levels of meaning presented by Barthes, and the elements of meaning defined by de Saussure.

Two studies by Kawama are discussed. In the first study Kawama (1985) analyses the decoding process of international signs, such as, the signs for hospital, men's toilet, and telephone. A communication model is suggested. The aim of the model is to provide the designer with information on the communicative value of signs. It is also suggested that it can assist during the designing process. The model is based on the semiosis with the notification of the sender and the decoding, and the receiver and the encoding of the sign. It is argued that when the communication process is successful twelve different processes are found. These processes are defined according to the sign – object relation, and they are called indexical, iconic, or symbolic processes.

In the second study Kawama (1987) focuses on the design process, and presents an experimental approach to that. Kawama discusses strategies and inferences, and characterises inference in the design process. The main focus is on creating a computer-aided design system. The systematisation of the design process is exemplified by a 'colour planning system', which aims at structuring the design of colours of products. The system, which Kawama (1987) refers to, is based on a study in which the relationship between the colours of products and words used for these products are statistically calculated. The outcome of the study is a 'colour image map', which shows that words and colours are related to each other. Additionally, words are defined on three levels, which can be compared to the two levels of meaning presented by Barthes. Kawama suggests that the colour system provides information on important concepts linked to the design, and assists in finding the optimal colours for products. Kawama (1987) argues that design is based on intuition and experiences, and that it lacks clear logical rules. It is also stated that it should be possible to create an expert system for designing products which would assist during the design process. It can be argued that the structure of the design process in the study is based on the one-way-communication model, with the designer as the sender, the user as the receiver, and the product defined as a sign vehicle between these two. It can be claimed that the semiotic view in the study by Kawama (1987) argues that inferences are characterised according to the types of signs suggested by Peirce.

Heilbrunn (1997) examines logos. First, the study discusses the function of logos. The discussion is based on the functions defined by the linguistic Jakobson, i.e. the phatic, poetic, emotative or expressive, impressive or conative, metalinguistic and referential functions of logos<sup>27</sup>. Second, the structure of logos is discussed, such as alphanumeric logos, iconic logos (such as the logo of Shell with an icon of a shell) and mixed (such as the logo of Finnair with an iconic picture of a plane and the letter F). Third, the study examines logos from the semantic perspective by Peirce and the sign types of symbol, icon, and index. Colour is noted as an element of expression, which means differentiation by colours.

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<sup>27</sup> The functions are defined in footnote 15.

### 3.5.1 Reflections on past research applying a semiotic approach

One of the obvious conclusions that can be made concerning the studies mentioned above is that they share strong normative purposes. This means that they discuss design issues from a managerial point of view having a limited consumer perspective and, in fact, the studies lack consumer data. However, they are mentioned as they apply semiotics in analysing packaging and other design issues. Some conclusions are made below concerning the schools of signs and the concepts that the above-mentioned studies use.

First of all, the studies above discuss and apply the three fields of research areas originally suggested by Morris. It can be found that the studies by Heilbrunn (1997), Vihma (1995) and Kawama (1985) are linked to a semantics point of view, whereas Hoshino (1987) has a pragmatics perspective. Second, the three types of signs defined by Peirce are applied (Vihma 1995; Kawama 1987). Third, the levels of meanings originally postulated by Hjelmslev are referred to (Klapisch 1995; Sherry and Camargo 1987; Hoshino 1987). Fourth, Kawama (1985) and Heilbrunn (1997) discuss semiosis originally presented by Peirce. Fifth, Hoshino (1987) applies the elements of meaning originally defined by de Saussure. Finally, Heilbrunn (1997) and Solomon (1988) apply the six function of communication originally suggested by Jakobson.

The preceding discussion indicates that semiotics provides many approaches to study phenomena, such as those phenomena that take place in a marketplace. To begin with, it appears that many of the studies above are based on the Peircean heritage. This means that many studies are based on the triadic relation between the elements in semiosis, i.e. sign – interpretant – object. It also appears that semantics, i.e. the sign – object relation is referred to. Additionally, the studies apply the different types of signs based on the sign – object relation such as iconic, indexical, and symbolic signs.

Furthermore, it also appears that the levels of meanings defined originally by Hjelmslev are referred to. Studies also refer to Barthes and his definition of the two levels of meanings.

Additionally, it seems that the function of signs defined by Jakobson seems to have found its way into semiotic studies. This concerns particularly studies on design issues.

It goes without saying that the review above on previous studies with a focus on design issues is not complete. For example, Vihma discusses design issues of products and different signs from a semiotic perspective in a study from 1992. However, that study is primarily from the designer's point of view only, and it lacks any notions of the consumer. It is also important to note that the present study excludes past research on packages written in French, such as that of Dano (1995).

Despite the fact that there are few studies that have applied semiotics as an approach to analyse the impact of design issues, such as colours, on consumer behaviour, it can be concluded that support for the design of the present study is found. To begin with, past research applying a semiotic approach supports the notion that packages function as a means of communication. In addition, it can be assumed from the previous studies

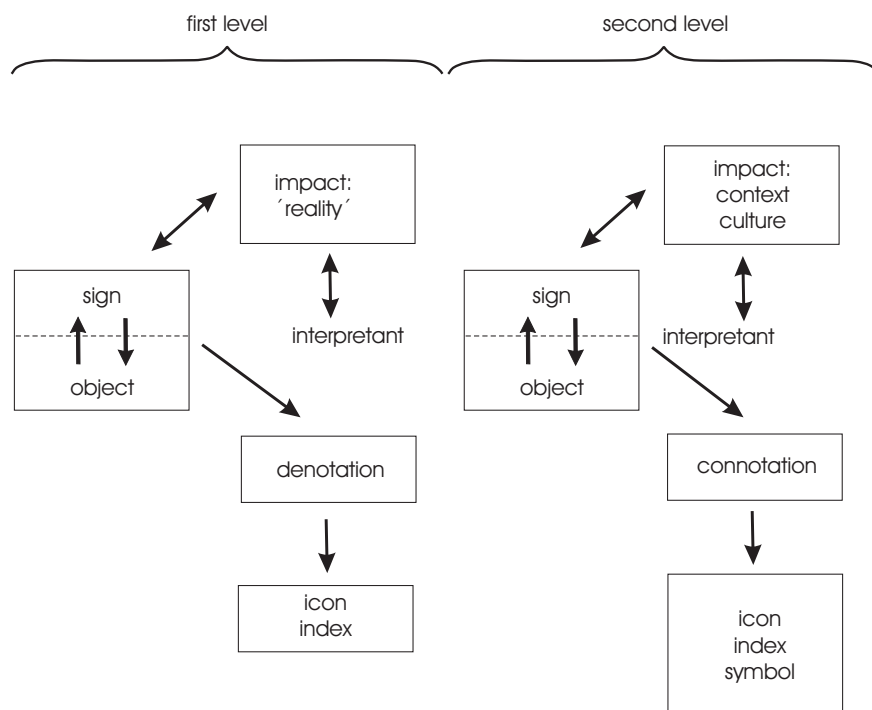
applying a semiotic approach that colours communicate as a means of non-verbal signs. Furthermore, past research postulates that semiotics may provide tools in order to increase the understanding of communication also within a marketing context, such as colours as a means of non-verbal signs on the package.

### 3.6 COLOUR MEANING ON TWO LEVELS

The semiotic perspective in this study is summarised in a figure illustrated below. The figure emphasises the semiotics concepts applied in the current study.

The aim of the figure is, first of all, to stress that the sign of colour works on two levels. Second, it shows that the levels convey two different meanings: a denotative meaning and a connotative meaning. Third, the figure illustrates that the meaning is the outcome of the relation between the sign and the object, such as the colour and the product. Fourth, it postulates that the outcome of that relation is dependent on various elements, such as the product class and culture, i.e. the context of the sign and the object. Fifth, the figure suggests that the outcome of the sign – object relation results in different types of signs depending on the level of the colour meaning.

As pointed out previously, this study refers to both schools of signs, i.e. the school of semiology and semiotics. Thus, figure 20 is based on the levels of meaning that are originally suggested by Hjelmslev, and as presented previously by Barthes. However, the figure is adapted to semiosis and to the different types of signs discussed by Peirce. Also, the figure emphasises the relation between the sign and object defined by Morris.



*Figure 20. Colour meaning on two levels*  
(Kauppinen 2001:132)

The *first level* indicates that the relation between the sign and the object is direct. The interpretation of the sign – object relation is referred to as a denotative meaning. The interpretation of the relation on this level lacks further impact such as the impact of the context. This means that the interpretation of the sign – object relation is predominantly based on obvious and common sense, i.e. reality.

With reference to the three types of signs defined by Peirce it can be argued that iconic and indexical signs convey denotative meaning at the first level. This argument is based on the definitions of these signs. As can be recalled, iconic signs are defined as signs that resemble their object, whereas indexical signs are defined as signs that have a direct connection with the object. These definitions imply that receivers, such as consumers, understand the sign – object relation in a fairly similar way. Consequently, it can be postulated that iconic and indexical signs result in shared meanings.

The *second level* indicates that the relation between the sign and the object is rather indirect. Figure 20 suggests that the outcome of the relation is a connotative meaning. At this level the interpretation of the sign – object relation is not only based on the dyadic relation but is affected by such contextual issues as the culture.

This study claims that the signs of icons, indexes as well as symbols convey meaning at the second level. In general, iconic signs are stated to resemble their objects directly as they do at the first level of meaning. However, it can be claimed that iconic signs convey meaning at the second level as well, as it is suggested that iconicity also means abstract resemblance (Nöth 1990). A table of contents on a package exemplifies this. Indexical signs are also stated to stand in a direct relation to its object. However, it is also suggested that an index is related to its objects through association. This implies that meaning is conveyed at the second level as well. The assumption that indexical signs convey meaning at the second level as well is further supported as it is maintained that signs are indexical also when there is a belief that a real relation exists between the sign and the object. The third sign on this level is the symbolic sign. As said, the symbolic sign indicates that there is no direct connection between the sign and the object as the relation is based on convention, agreement, or a rule (Fiske 1990). Consequently, symbolic signs are the most evident signs on this level.

To conclude, the aim of figure 20 is to summarise the semiotic perspective in this study, and to suggest how colours as a means of communication can be analysed. As can be recalled, it is assumed in the present study that applying semiotics can increase the understanding of colours as a means of communication on packages. Thus, in order to further penetrate the colour – product relation a semiotic analysis is performed.

## 4 THE EMPIRICAL RESEARCH PROCESS

This chapter presents the empirical research process of the study. This means that the decisions made concerning the design of the empirical research of the study are discussed.

The present study encompasses two empirical parts.

In the first part a quantitative technique was used. This part aimed at answering the two first research questions, i.e.

*Do colours on packages have an impact on decision-making in low-involvement purchasing?*

*If colours have an impact on decision-making in low-involvement purchasing, is that impact of colours related to the product class in question?*

Briefly, the first part aimed at investigating whether colours have an impact or not, and, if colours have an impact, whether this impact is related to the product class or not.

In the second part a qualitative technique was used. This part aimed at answering the third and last research question, i.e.

*If colour – product relations are detected, how could an analysis of these relations be carried out in order to increase the understanding of the impact of colours on decision-making in low-involvement purchasing?*

Basically, the focus in the second part of the empirical study was on analysing as well as better understanding the impact of colours in the specific context of the study.

### 4.1 CHOICE OF RESEARCH METHOD

The foundation of the overall research design of the present study is exploratory. This means that the study has attempted to provide insight and understanding of a particular marketing phenomenon in depth. In other words, the study has aimed primarily at exploring colours used as signs in a certain context.

The exploratory nature of the present study means that the research process has been flexible, in accordance to the abductive research process. This particular nature of the study steers such aspects of the study as the empirical design of the study, the sample size, as well as generalisation of the findings. It means, for example, that the size of the sample is not crucial. It means also that due to the size of the sample and the sampling procedure used, the findings cannot be generalised. In other words, it must be pointed out that the findings only apply to the sample used in this study.

A major issue in designing the present study was to find a method in order to answer the first two research questions. As the focus was on colours, a starting point was to find a method by which it is possible to isolate the impact of colours from the impact of other package signs such as package shape.

It was concluded that by performing a study with an experimental design it is possible to exclude the impact of other package signs. An experimental design also makes it possible to exclude the impact of such features as experience, habit, and previous knowledge of the brands.

Experiments are most often used to infer causal, i.e. cause-and-effect, relationships which would indicate a causal research design. However, as the aim was to explore a phenomenon in depth, the explorative nature of the study means that the study used quantitative as well as qualitative techniques. The quantitative technique used in this study was a conjoint analysis, which is a multivariate technique. However, it has few statistical assumptions, and therefore, the technique should rather be regarded as a technique having exploratory aims than as a technique for testing causal relationships. Thus, the quantitative technique used goes in line with the exploratory design of the present study.

## 4.2 SUMMARY OF THE RESEARCH DESIGN

In addition to the overall research design, a standpoint has to be taken concerning several other issues regarding the design of the empirical research.

As said, this was an experimental study involving quantitative and qualitative techniques. Figure 21 summarises the process and various methods used in the study. The process illustrates simultaneously the layout of Chapter 4. It also depicts the eight phases that preceded the final study.

<b>Choice of industry</b> <ul style="list-style-type: none"> <li>healthcare industry</li> </ul>	A U T H E N T I C
<b>Choice of product classes, first stage</b> <ul style="list-style-type: none"> <li>Evaluation of eight product classes</li> <li>Chosen product classes <ul style="list-style-type: none"> <li>painkillers</li> <li>medicine against heartburn</li> <li>cough mixture</li> <li>medicine against sore throat</li> </ul> </li> </ul>	
<b>Pre-study (19 subjects)</b> <ul style="list-style-type: none"> <li>Choice of final product classes, second stage</li> <li>Evaluation of four product classes</li> <li>Chosen product classes <ul style="list-style-type: none"> <li>painkillers</li> <li>medicine against sore throat</li> </ul> </li> <li>Identifying attributes</li> </ul>	B R A N D S
<b>Experimental design</b> <ul style="list-style-type: none"> <li>Conjoint analysis <ul style="list-style-type: none"> <li>Full profile approach</li> <li>16 profiles</li> </ul> </li> <li>Specifying attributes and levels of attributes for the preliminary conjoint study</li> </ul>	H Y P O T H E T I C A L
<b>Preliminary conjoint study (7 subjects)</b> <ul style="list-style-type: none"> <li>Evaluation of the attributes and the levels of these chosen attributes</li> </ul>	
<b>Designing the final conjoint study</b> <ul style="list-style-type: none"> <li>Modification of the attributes and the levels of attributes</li> <li>Designing the final profile cards</li> </ul>	
<b>Final conjoint study (18 subjects)</b> <ul style="list-style-type: none"> <li>Looking for answers to research questions 1 and 2</li> </ul>	B R A N D S
<b>Final qualitative study (18 subjects)</b> <ul style="list-style-type: none"> <li>Interviews</li> <li>Follows up on the final conjoint study</li> <li>Looking for answers to research question 3</li> </ul>	

*Figure 21. Empirical research process*

As stated above, the figure shows that the empirical research process of the study consisted of several phases. To begin with, the research setting of the study was decided upon. One of the basic issues of the research setting concerns choice of the industry in which the study would be conducted. It was determined that the present study would focus on the healthcare industry.

The research setting also includes the choice of product classes within the selected industry. This issue was in some respect steered by the second research question due to the fact that the focus was on investigating whether the impact of colours varies according to the product class. Consequently, a task was to find two suitable products

classes for investigation. Initially eight product classes were considered in the present study.

Based on an evaluation of the eight product classes and the brands within them four product classes were selected for a pre-study. The aim of the pre-study was to find the two final product classes and to detect those attributes that appear to have an impact on the preferences of the subjects. Based on the pre-study it was determined that the final study would include painkillers and medicine against sore throats. It is important to note that the various phases above were based on evaluations of authentic brands.

The final study was based on an experimental design involving two empirical parts. The first part of the study involved a quantitative technique, i.e. a conjoint analysis. In short, conjoint studies are conducted, for example, to find out how preferences are created. In other words, how certain predefined features or attributes of a brand contribute to the consumer preferences for that brand. Thus, a conjoint study can be designed in order to measure the relative impact of package signs, such as colours, shape, price, and so on. Consequently, the following step was to determine the attributes and the levels of attributes to be used in the conjoint study.

When the attributes and the levels of attributes had been chosen, a preliminary conjoint study was conducted in order to test the conjoint design. Based on the preliminary conjoint study, the design of the final conjoint study was decided upon.

In the second part of the empirical study, a qualitative technique was used aiming at understanding, and detecting the ‘whys’ of behaviour. Thus, interviews appeared as an alternative way of collecting data as it then would be possible to answer questions such as why, how, and who (McDaniel and Gates 1996). By performing interviews the interviewee may interact with the subject, which means that the interviewee has the possibility to gain deeper information about the subjects. Thus, it was determined that the second part would be performed as interviews. Further, it was concluded that data would be collected by interviews that would be loosely structured<sup>28</sup>. Therefore, aiming at understanding the behaviour of consumers’ interviews would be conducted on a one-on-one basis.

It is important to note that the two final studies are conducted simultaneously. This means that the subjects were interviewed simultaneously as they performed the conjoint tasks. This means that the two studies are closely linked to each other as the qualitative study is based on the quantitative study.

#### 4.3 CHOICE OF SETTING

As pointed out earlier, an issue in the design of an empirical study is to decide upon the setting of the study. In this study, the second research question in particular had an impact on this issue as the focus was on investigating whether the impact of colours

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<sup>28</sup> Two interviews are translated in Appendix 11



varied according to the product class. As a consequence, the study involved two product classes.

The selection of the setting, i.e. the industry and the two product classes, is discussed below. The processes of determining the various attributes to be used in the study are explained as well.

#### 4.3.1 Choice of industry

Based on an evaluation process of various industries and different product classes, it was concluded that the empirical setting of the study would be the healthcare industry involving packages of pharmaceuticals.

There are many reasons for choosing this industry. The most important reason is the specific characteristics of the products behind the brands within this industry. As it appears, some product classes consist of brands with core products that are more or less identical. This means that the core products are indistinguishable from each other, and only such attributes as price, brand name and other package signs differentiate one brand from another (Hedvall 1994).

However, the industry is interesting for other reasons as well. First of all, it can be mentioned that the healthcare industry is different from many other industries. For example, the industry is strictly regulated. In addition, the R&D costs are usually very high, and it also appears that the competition is fierce.

Second, there are changes going on, for example in Finland, that most probably will have an impact on the design of the packages of pharmaceuticals and the overall communication. As an example it can be mentioned that healthcare is moving from the authorities more to the responsibility of the individual consumer. It is also noticeable that self-service is becoming more common in pharmacies. Another trend is that some pharmaceuticals that used to be prescription-only medicines have become non-prescription medicines. According to the Dr. Sinikka Mönkäre, Minister of Social Affairs and Health, pharmaceutical products may even be distributed through new distribution channels in the future, such as supermarkets (Haapakoski 2004).

#### 4.3.2 Choice of product classes, first stage

The next issue was to find suitable product classes within the selected industry. An important notion is that this study focused on non-prescription medicines.

The search for the product classes was performed as a two-step procedure. The first step involved an evaluation of the various product classes found at pharmacies, and the brands within these product classes. The second step involved a pre-study, which is explained in section 4.3.3.

The evaluation of the various product classes was based on information gained from pharmacists. Six different pharmacies<sup>29</sup> in Helsinki and Espoo were chosen for the study.

Criteria for choosing the product classes were determined in advance. The pharmacists in these pharmacies were asked to point out those product classes in which the core products behind the brands are indistinguishable from each other. Basically, the pharmacists pointed out the same product classes in all pharmacies. However, the brand selections varied between the pharmacies, and in order to gain a complete overview of the product classes and the brands within them a total number of six pharmacies (those listed in footnote number 23) were visited. This means that the reliability of the knowledge of the pharmacists was also tested simultaneously.

Initially eight product classes were considered, namely

- painkillers
- c-vitamins
- medicine against heartburn
- cough mixture
- medicine against sore throats
- magnesium
- nicotine gum
- flu medicine

The features of these product classes are listed in Appendix 5.

The first criteria that the product classes had to meet was that the differences between the core products behind the brands have to be as minor as possible in the eyes of the consumer. This means that the core products should be indistinguishable from each other. This is explained by the fact that as the core products are very similar in the sense that they are indistinguishable from each other, it can be assumed that brand preferences are mainly based on attributes such as price, brand name and other package signs, i.e. stimulus-based information. When attempting to find product classes that met the criteria the present study relied upon the knowledge of professionals, i.e. pharmacists. It was assumed that they would be able to give advice regarding the ingredients of the pharmaceuticals. This also concerned the importance of possible differences in the ingredients of the core products from the consumer's point of view.

The second criteria concerned the number of brands within the product classes. Thus, it was concluded that in order to be able to detect if colours have an impact on brand preferences, the number of brands in the product classes had to be at least three, preferable more.

The third criteria that the product classes had to meet concerned the design of the packages. This issue is particularly important in the second step in search of the final

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<sup>29</sup> The pharmacies chosen for this study are located in the city of Helsinki (the University Pharmacy on Mannerheimintie) and in Töölö, Ruoholahti, another one on Mannerheimintie and in Kamppi. A pharmacy located in Tapiola, Espoo was also chosen.

two product classes. Thus, in order to be able to detect if colours have an impact on preferences as well as to detect which other attributes have an impact on choice preferences in the pre-study, the packages of the authentic brands should differ from each other. This means that the packages should have different shapes, for example, and that they should differ from each others when it concerns colours, pictures and the overall visual appearance in general. In conclusion, the appearance of the packages was regarded as an important aspect in selecting the product classes.

Based on an evaluation of the eight product classes, four product classes were selected for pre-testing in a pre-study, because they fulfilled the criteria set up, namely

- painkillers
- medicine against heartburn
- cough mixture
- medicine against sore throats

#### 4.3.3 Pre-study

The aim of the second step was to choose two product classes for the final study. The aim of the pre-study was also to get an impression of which attributes can be considered as crucial, when consumers choose a brand within the specific product classes. In order to be chosen for the final study the product classes should be familiar to the subjects. This means that the subjects would know the specific illness that the product class in question is intended to cure, and they would be able to project themselves in the scenario. Further, the brands should meet the criteria mentioned above. The third criterion in particular was considered to be an important one.

This section describes first how the pre-study was conducted and, secondly, it explains why the two final product classes were chosen. The identification of the various attributes is explained in the following section, i.e. section 4.3.4.

##### *4.3.3.1 Data collection procedure*

Altogether 19 subjects were involved in this part of the study. The subjects were colleagues at the Swedish School of Economics and Business Administration, i.e. Hanken.

The four evaluated product classes are listed in the following table.

Table 2. Pre-study

Product class	Brands	Subjects
Painkillers	5	6
Medicine against heartburn	5	5
Cough mixture	4	3
Medicine against sore throats	3	5

The first product class involved five brands, and six subjects participated in this part of the study. The second product class was represented by five brands, and five subjects participated. The third consisted of four brands and it involved three subjects, and the final product class included three brands names that are differentiated by taste into six products. Thus, in real life the consumer may at the pharmacy choose from six different tastes: brand A comes in three tastes, brand B is sold in two different tastes, and brand C is available in one single taste. This means that concerning the final product class the subjects stated their preferences concerning six products.

Data was collected by interviewing the subjects one-on-one. One session lasted between 15-30 minutes. The data collection sessions started by showing the subjects all the brands in a specific product class. The subjects were told a scenario, where the subjects were supposed to have a minor illness. The illness varied according to the product class in question.

#### SCENARIO:

*You have an illness that has to be cured so that you will be able to attend an important meeting. You rush into a pharmacy and notice that all the pharmacists are occupied. You find the right shelf and you are able to evaluate the brand attributes and product features, including price information. You pick up one of the brands. Which one?*

In short, the objective was to detect the likelihood that a brand would be bought. More precisely, the subjects were first asked to choose the most preferred brand in a purchase situation. Then they were asked to choose the second most preferred brand, and so on. Finally, the subjects had ranked the brands in order from the most preferred brand to the least preferred one.

Basically, every choice was followed by an interview. In other words, the subjects were interviewed in order to find reasons for their choices. Thus, the brand choice was always followed by a question: *‘Why did you choose that specific brand?’* The purpose of the question was to encourage the subjects to discuss their selections in order to be able to identify which attributes have an impact on brand preference and choice.

When the first brand choice was made, the subjects had to imagine a scenario where the first selected brand was sold out. The scenario was followed by the question: *‘Which brand would you choose then?’* Also, this choice was followed by a question: *‘Why?’* This questioning continued until all the brands were chosen. At the end the subjects had put the brands in a preference order. Simultaneously, as the brands were put in

preference order, notes were taken on the orally expressed criteria and reasons for the preferences and choices.

#### *4.3.3.2 Choice of product classes, second stage*

Next the four product classes are evaluated.

##### *Painkillers*

The first product class that was tested was *painkillers*. Six subjects were interviewed. The illness to cure was a tremendous headache. This product class consisted of five brands, and the core products behind the brands were identical, which means that the core products in this product class were indistinguishable from each other. In other words, the brands differed from each other when it comes to price, producer, country of origin, and other signs, such as colour and shape.

Brand name appeared to be the most important attribute that influenced preferences. In addition to brand name, the appearances of the packages appeared to have an impact on preferences. For example, subjects motivated their preferences by stating that some brands appeared to be old fashioned and even conservative through their packages. Some packages seemed to convey friendliness. Further, some brands were said to resemble other product classes through their packages. Some subjects stated that the appearances of the packages indicated the country-of-origin of the brand. An interesting notion was that, in particular, the colours on packages were mentioned in this context. As it appears colours conveyed meanings about the country-of-origin of the brand, and this link was made in a negative sense. When it concerns the various design elements of the package appearances colours were, in fact, most often commented on. Colours on painkillers were commented on in the following manner: '*bad colours*', '*red is reminiscent of pain*', '*tough colours*', '*ugly colours*', '*strange colours*' and '*yellow and orange – does not fit*'. Further, red was said to resemble headache and pain. Also the shapes of the packages were commented on. One of the brands was shaped as a portrait and this package shape was noted in a negative sense because it differed from the other brands, which were shaped as landscape. The attribute of font of the brand names was commented on. One brand was said to be old fashioned because of the font of the brand name. Further, brand names in capital letters were noted. When it concerns the producers of the brands, known producers were commented on as representing trustworthiness. This appeared to be important particularly when the brand name was unfamiliar. When it concerned the price of the brands, it appeared to have a minor importance as the subjects explicitly said that the price does not matter. In fact, the subjects in the pre-study preferred the most expensive brand. According to pharmacists in the visited pharmacies that particular brand is the market leader of painkillers.

An interesting finding concerning painkillers was that it appeared that when the brand name was unfamiliar the subjects motivated their preferences by commenting on the appearances of the packages. Further, the appearances of the least preferred brands were often commented on in a negative sense. An additional interesting finding was that the subjects expected that the brands would have a certain appearance, which indicates that the product class has meanings attached to it.

### *Medicine against heartburn*

The second product class was *medicine against heartburn*. Five subjects participated. This product class also consisted of five brands. In accordance to painkillers, the core products behind the brands in this product class were indistinguishable, and only price, producer, country of origin, as well as other packaging signs (for example, colour and shape) differentiated the brands from each other.

One crucial notion concerning this product class was that the subjects were unfamiliar with the illness that the product class is intended to cure. This means also that the subjects did not know the product class in question. Because the product class was unfamiliar, the brands within it were also unfamiliar. As a consequence, the subjects motivated their choice preferences basically with issues related to the appearances of the packages. Thus, neither the brand names nor the prices of the brands were commented on. When it comes to the appearances of the packages brands within this product class, they were commented on as resembling other brands in other product classes. Some brands were also said to be clinical and resembling prescription medicines. Concerning the specific design elements of the packages such signs were noted as colours, shapes of the packages, and fonts of the brand names. For example, the colour of blue was commented on as being a colour that is calming. This was noted in a positive sense. The knowledge of the producers was noted as an attribute that was linked to the trustworthiness of the brands.

### *Cough mixture against retraining cough*

The third tested product class was *cough mixture*. Three subjects participated in the test. This product class consisted of four brands, and the products behind these brands were not identical. However, the brands were stated to cure the same illness or symptom, and according to the pharmacists the consumers have difficulties in evaluating the differences between the brands. Thus, in the eye of the consumer the core products were indistinguishable.

Regarding the brands and the appearance of the packages similar conclusions could be made as those made for the two previous product classes. Thus, the brands differed when it comes to price, producer, country of origin, and other packaging signs such as colour and shape. An additional feature of this product class was taste, which differed between all the four brands.

The most interesting observation in this product class was that although all the cough mixtures were flavoured there were no signs of the taste or any cues to the flavour on the packages that would indicate the attribute in question. This means that the tastes of the products were only mentioned in the directions of use that were found on the package. As a consequence, it appeared that the subjects did not use the attribute of taste to state their choice preferences. However, the brand name and price appeared to be important attributes. In addition, the producers of the brands were noted. The appearances of the packages were linked to issues such as clinical medicines and the trustworthiness of the brand. The colours of the packages were pointed out. For example, the colour of red was mentioned in a negative sense, as it was noted as a colour that irritates the lungs.

### Medicine against sore throats

The fourth product class included in the pre-study was medicine against sore throats. Five subjects were interviewed. This product class contained three brand names that were differentiated by taste into six products. Thus, the consumer may choose from six different tastes: brand A comes in three tastes, brand B is sold in two different tastes, and brand C is available in one single taste. However, the brands did not only differ concerning the taste but also the core products behind the brands differed. Thus, the core products behind the brands were not identical. However, the core products were indistinguishable from each other as they were claimed to cure the same symptoms. Therefore, when having a sore throat these are the brands that the consumer chooses from according to the pharmacists.

When it concerns the attribute of taste it appeared that taste is an ingredient of medicine against sore throats that was utilised when differentiating brands from each other in contrast to cough mixture. Thus, verbal as well as non-verbal signs conveying meaning about the taste of the product were found on the package. This means that the flavour of the product was written on the package and that non-verbal signs such as colours related to the taste appeared on the packages. As it appears taste was an ingredient that was utilised when distinguishing brands from each other. One reason why taste was emphasised is that this pharmaceutical stays longer in the mouth. An observation in this product class was that the subjects stated their choice preferences by emphasising the taste of the brands, i.e. taste appeared to be an important attribute.

In addition to taste choice preferences were based on brand knowledge and on brand familiarity, for example, through previous consumption. In accordance with the previous product classes the appearances of packages were commented on. For example, packages were commented on as being fresh and effective. Concerning the specific design elements, colours in particular were mentioned. Two of the brands had the colour blue as their main colour. One of them tasted of mint whereas the other brand was in menthol. An interesting notion was that blue and mint were commented on as being a confusing combination. Further, two brands had yellow as a main colour. One of them tasted of honey and lemon whereas the other lacked a specific flavour. An interesting finding was that when the brand name was unfamiliar the relation of yellow and the lack of flavour were considered as being a confusing combination. One of the brands had the colour of red as a main colour and that brand lacked a specific flavour. An interesting finding was also that when the brand name was unfamiliar the colour – taste relation was either accepted or it was assumed to taste like strawberry or other red berries. An interesting observation in this product class was also that colours were mentioned in relation to the country-of-origin and to the product quality. For example, colours conveyed meaning of effectiveness and the degree of strength of the pharmaceuticals. A conclusion is that colours were mostly mentioned in relation to taste; however, colours appeared to have significance from an aesthetic point of view as well. In addition to colours the fonts of the brand names were commented on. The size and the amount of the core product, i.e. the tablet itself, were also mentioned.

An interesting conclusion concerning this product class is that the subjects accepted that the appearances of the packages were linked to candies. In fact, one of the brands was

regarded as resembling medicine, and this notion was made in a negative sense. This indicates that the product class has meanings attached to it, and apparently such signs as colours convey product class meanings.

### Evaluation

Based on the evaluation of the product classes that lack the attribute of taste it was determined to include painkillers in the final study and to exclude medicine against heartburn from it. These two product classes shared the fact that the core products behind the brands were identical and that the brands differed only when it comes to brand names, prices, producers, country of origin, and other packaging signs such as colours, shapes and fonts. In the pre-study the attributes mentioned above seemed to have an impact on choice preferences as the subjects motivated their preferences by the appearances of the packages in both product classes. Thus, the main reason for excluding medicine against heartburn was that the subjects were not familiar with the illness of having heartburn. This means that they did not know the product class and they were not able to project themselves into a scenario of having heartburn. When it comes to painkillers the subjects knew the illness of having a headache and they were familiar with the product class of painkillers that cures this illness.

Cough mixture and medicine against sore throats shared the fact that the products in these two product classes include taste; however, the core products behind the brands were not identical. However, all the brands within these two product classes were claimed to cure the same illness, which means that the core products were indistinguishable. In addition, it seemed in the pre-study that attributes, such as country of origin, and other packaging signs, such as colour and shape, had an impact on preferences. Further, a conclusion was drawn that the product classes seemed to be familiar and no problems emerged when the subjects were projecting themselves into the scenarios.

Thus, the crucial issue concerning these two product classes concerned the attribute of taste. Basically, it was assumed that the taste of the products would make a difference to the preferences, and that an impact of taste on preferences would appear. Thus, as said, an interesting observation was that taste appeared to have a minor importance when it comes to cough mixtures, for example, because there were no obvious signs of the taste or any cues about the flavour on the packages that would indicate the attribute in question. Thus, brand preferences were not motivated by the taste of the product. In contrast to cough mixture, it appeared that taste was an ingredient in the product class of medicine against sore throats that was utilised when differentiating brands from each other. Apparently, preferences were also based on the taste of the brands. Based on the notion of taste, it was decided to include medicine against sore throats in the final study and to exclude cough mixture.

#### 4.3.4 The process of identifying attributes

The selection of the two final product classes was followed by identifying those attributes that can be considered as crucial when consumers choose brands within the



chosen product classes. The objective was to identify those attributes that seemed to have an effect on brand preferences without putting them in any particular order of importance.

In summary, it appeared that knowledge of and familiarity with the brands were essential aspects when choosing the pharmaceuticals in the product class of painkillers. Therefore, a conclusion was that the brand name is important. However, when the first preferred brand was supposed to be out of stock and the subject had to choose another brand, the following preferences were often motivated with attributes other than the brand name. To begin with, colours were commented on. Also such design elements as the font of the brand name and the shape of packages were mentioned. Subjects also commented on the producer of the brand. Further, the country-of-origin of brands was mentioned. Finally, the attribute of price was mentioned, although it appeared to have a minor impact on the choice preferences in the pre-study.

To conclude, the following attributes were identified.

- brand name
- colour
- font of the brand name
- shape of the package
- producer
- country-of-origin
- price

The second product class was medicine against sore throats. It seemed that brand preferences in this product class as well were based on knowledge of a brand and on familiarity with a brand, for example, through previous consumption. One additional attribute in this product class was taste, and it appeared as an essential preference criterion as well. Subjects emphasised the appearances of the packages. In particular colours were mentioned, but the fonts of the brand names were also commented on. Further, the attribute of country-of-origin was mentioned. The size and the amount of the core product, i.e. the tablet itself, were also mentioned. An interesting factor is that the attributes of producer, price and shape of the package were not pointed out.

The following attributes were identified.

- brand name
- taste
- colour
- font of the brand name
- country-of-origin
- size of the tablet
- amount of the tablets

## 4.4 EXPERIMENTAL DESIGN

The first part of the study was set up to answer the two first research questions. Briefly, the first part aimed at investigating whether colours on packages have an impact on decision-making in low-involvement purchasing or not and, if colours have an impact, whether this impact of colours is related to the product class or not.

In order to fulfil the tasks a conjoint study was conducted.

### 4.4.1 Conjoint analysis

Conjoint analysis is a multivariate technique that has few statistical assumptions, and accordingly, it is basically founded in theory when it concerns such issues as its design, estimation, and interpretation (Hair et al. 1998). As said, this indicates that a conjoint analysis should rather be regarded as a technique having exploratory aims than as a technique for testing causal relationships.

Conjoint means a procedure constituting a number of different techniques and methods, which imply that conjoint is not completely standardised. Conjoint is used to measure consumers trade offs among brands and services that constitute many attributes (Hair et al. 1998; Green and Srinivasan 1990). This means that an assumption within the technique is that brands and service are evaluated as a '*bundle of attributes*' (Hair et al. 1998:398). Conjoint studies are conducted in order to find out how preferences are developed, and what features or attributes a consumer values in brands. In addition, conjoint is used to find the most preferred combinations of levels of attributes that contribute to the experimented overall utility, and which then can be utilised in brand and service development (Marshall and Bradlow 2002).

In order to elicit the definition of various concepts it is important to note that a feature of a brand or a product such as a colour is referred to as an *attribute*, the variety of an attribute, such as different colours, are *levels*, and the incentives, i.e. the combination of attribute levels that the subject evaluates in a conjoint task, are called *stimuli*. When these stimuli are presented to the subject they are referred to as *profile cards*.

According to Ness and Gerhardy (1994) (see also Marshall and Bradlow 2002; Murphy et al. 2000) basic assumptions of a conjoint study are that

- brands are composed of a set of different attributes
- specific brands can be defined as sets of attribute levels
- the total utility of brands derives from summing up the utilities, also called part-worths, which each attribute level contributes
- consumer choices are based on the fact that they trade off combinations of attribute levels

Primarily, conjoint is used to find how attributes contribute to the overall utility of brands and services. This is the main reason to utilise conjoint also in the present study.

#### 4.4.2 Specifying the attributes and levels of attributes

The present study, including both the preliminary and final conjoint, was performed as a so-called traditional conjoint. This type of conjoint is characterised by that it uses a simple additive model to represent the preference<sup>30</sup> (Hair et al. 1998). The model assumes, in other words, that the total utility for a specific stimulus can be represented by the sum of the estimated part-worths for the attribute levels of that stimulus. This model is a simple model based on an additive composition rule that calculates main effects (part-worths) only, i.e. possible interaction effects between various combinations of attribute levels of the study are not evaluated (Hair et al. 1998).

Thus, by using this particular composition rule the present study assumes that there are no interactions between the various attribute levels. In other words, it is assumed that the various part-worths are independent of each other. This is the least restricted model, also referred to as the '*part-worth form*' (Hair et al. 1998: 411)

One important step in designing a conjoint study is to decide upon the attributes and the levels of attributes to include in the design of the stimuli. This phase steers many aspects of the study. First of all, the number of attributes and the levels of each attribute have an impact on the amount of possible combinations. This means that by increasing the number of attributes and their levels the number of stimuli increases quickly. It may also have an impact on the reliability of the study. Second, the selected attributes and their levels have a direct impact on the results of the study. This means that it is important to realise that the interpretation of the forthcoming findings relates only to the selected attributes and levels of attributes (Hair et al. 1998). Evidently, this concerns the present study as well. However, although this study is experimental, it should aim at imitating real life as closely as possible (McCullough 2002). As a result, the sense of real life is gained by following the advice of Gustafsson et al. (1999). They point out that a stimulus should be designed according to real life taking into account the aims of the study.

As a result, designing the stimuli in the present study was based on the pre-study. This means that those attributes that appeared to be crucial when the subjects stated their preferences should be included. However, it also means taking into account the aims of this study, which means emphasising the attribute of colour. The attributes considered were, in other words, those identified in section 4.3.4, namely *brand name, country-of-origin, producer, shape of the package, taste, colour, font of the brand name, price, size and amount of the tablets*.

In order to imitate real life the levels of the attributes should be based on those found on the packages of authentic brands. One important criterion in conjoint analysis is,

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<sup>30</sup> total utility = part-worth of level i for attribute 1 + part-worth of level j for attribute 2 + ... part-worth of level n for factor m (Hair et al. 1998:394).

namely, that the attribute levels cover realistic choice situations as close as possible (Hair et al. 1998).

It was decided that as many as possible of the aforementioned attributes would be included in the design of the stimuli. Obviously, colour is one of the attributes to include in the design of the stimuli. It was decided to include the four main colours found on the packages of authentic brands, except white, i.e. blue, green, yellow, and red. When it comes to the rest of the stimuli some further considerations were made.

To begin with, it was decided that brand name as an attribute should be excluded from the design. The pre-study revealed that a strong brand name had a significant effect on preferences, even to the point that other possible effects easily could be overshadowed. Furthermore, a conjoint design concerns hypothetical brands. If the study used known brand names in such a design, brands should not be hypothetical anymore. Therefore, specific brand names as such should be avoided. However, it can be claimed that the attribute of a brand name was to some extent implicitly included in a new attribute called producer. In order to reduce the number of stimuli, it was determined to combine country-of-origin with a hypothetical producer specification into one attribute with four levels called producer. The hypothetical producer specification holds in it two levels, known and unknown producer. The four levels of the producer attribute are then known as known local producer, unknown local producer, known foreign producer, and unknown foreign producer.

The attribute of the font of the brand name was also excluded from the study. This is due to the fact that excluding specific brand names brings about exclusion of the font of such brand names as well. Instead it was decided to include shape. Shape appeared to be a design element that the subjects mentioned. Moreover, it is pointed out as an important design element in the literature.

This study did not involve tablets. Hence the attributes of size and amount of the tablets were excluded. At this phase of the study the attribute of price was included in the design as it was commented on in the pre-study. The levels of price were the lowest and highest price of the authentic brands. The third price was an average price of the rest of the brands. Medicine against sore throats included the attribute of taste as it appeared to be an important attribute in that product class.

In conclusion, it was determined that the stimuli for painkillers (product class 1) were designed according to 4 attributes and 3 - 4 levels for each attribute. The following attributes and levels of attributes were included.

- colour (blue, green, yellow, and red)
- shape (landscape, portrait, and oval)
- price (2.15€ , 2.45€, and 3.50€)
- producer (known local, unknown local, known foreign, and unknown foreign)

The outcome of this product class was  $4 \times 3 \times 3 \times 4 = 144$  stimuli.

The stimuli for medicine against sore throats (product class 2) were designed with the same attributes and number of levels as the previous product class, added with the attribute of taste. Also the price levels were defined according to the prices of authentic brands in the same way as for product class 1. As a result, the stimuli consisted of 5 attributes and 3 - 4 levels of attributes.

The following attributes and levels of attributes were included.

- colour (blue, green, yellow, and red)
- shape (landscape, portrait, and oval)
- price (3.25€ , 3.60€, and 4.45€)
- producer (known local, unknown local, known foreign, and unknown foreign)
- taste (menthol, honey and lemon, mint, and neutral)

The outcome of this product class was  $4 \times 3 \times 3 \times 4 \times 4 = 576$  stimuli.

#### 4.4.3 Data collection method

In the current study a *full-profile approach* was applied in designing the data collection instrument, i.e. the profile cards. This means that one stimulus consisted of one level of every attribute (McCullough 2002).

As noted, the overall numbers of attribute level combinations or stimuli in the preliminary conjoint were 144 for product class 1 and 576 for product class 2. These numbers of stimuli are obviously too big for the subjects to trustworthily put in rank order. For such cases conjoint studies make a distinction between factorial design and *fractional factorial design* (Hair et al. 1998). The latter is used in order to reduce the number of stimuli, in other words, to fraction a full-profile approach. It means that it is possible to bring down the number of stimuli so that the number of profile cards does not become too numerous for the subjects to handle. The fractioning in the preliminary conjoint resulted in 16 different stimuli in both product classes. The stimuli were fractioned by utilising an *orthogonal design*, which means that the impact of one attribute can be measured independently of the variation of other attributes (Gustafsson et al. 1999). Orthoplan available in SPSS version 11.5 was applied in the conjoint study.

The design matrixes for the preliminary study are shown below. An orthogonal design should not include stimuli with extreme values as those stimuli may provide little information about the preference or they can be unrealistic stimuli per se (Hair et al. 1998). Concerning the design of the preliminary study it is important to point out that the preliminary conjoint study, except for the attribute of price, does not involve attributes that can be considered to include extreme values. In other words, it cannot be claimed that one particular level of attribute in relation to another level of attribute is situated on any kind of scale.

Table 3. Preliminary design matrix for product class 1 (painkillers)

Nr	Colour	Shape	Price	Producer
1	2	2	1	2
2	4	3	3	1
3	1	1	1	1
4	3	1	1	4
5	1	2	3	4
6	3	1	3	2
7	2	1	1	1
8	1	1	2	3
9	4	1	1	4
10	2	1	3	3
11	3	2	2	1
12	4	1	2	2
13	4	2	1	3
14	2	3	2	4
15	1	3	1	2
16	3	3	1	3

Table 4. Preliminary design matrix for product class 2 (medicine against sore throats)

Nr	Colour	Shape	Price	Producer	Taste
1	2	2	2	2	1
2	2	1	1	3	3
3	1	1	2	3	2
4	3	3	3	3	1
5	1	1	1	1	1
6	1	3	1	2	4
7	3	1	1	2	3
8	1	2	3	4	3
9	4	1	3	2	2
10	2	1	3	1	4
11	3	2	1	1	2
12	2	3	1	4	2
13	4	2	1	3	4
14	3	1	2	4	4
15	4	1	1	4	1
16	4	3	2	1	3

The stimuli for the preliminary conjoint are designed according to the matrixes above. The combinations of attributes and levels of attributes, i.e. stimuli of the preliminary conjoint study are listed in Appendix 6 in more detail.

In the preliminary as well as the final conjoint study the preferences by the subjects were collected as *ordinal (non-metric) ranking* data. Rank-order scaling means that the subjects are presented objects, such as profile cards in this study, and asked to rank

them according to some specific criterion. In this study the criterion was the likelihood to buy. Basically, this means that in this study the subjects ranked the profiles cards from the most preferred one to the least preferred one in a purchase situation. Thus, the subjects ranked 16 profile cards in both product classes. This type of measure means that the study does not imitate real life in the sense that the subject may decide not to choose a stimulus, such as in choice-based conjoint, for example. However, it is implied to be easier to be performed by the subjects than, for example, ratings-based conjoint, which usually means that stimuli are rated on a 1-10 scale (Marshall and Bradlow 2002; Hair et al. 1998).

The preliminary conjoint study utilised the software called SPSS also in evaluating the rank-order data. This means that the estimation technique available in that software, i.e. *ordinary least square*, was used to estimate the part-worths for each level so that the estimated rank-order of total utilities (or total 'worths') correlates as much as possible to the observed rank-order.

#### 4.4.4 Preliminary conjoint study

Based on the previous design a preliminary conjoint study was conducted. The objective of this study was, on the one hand, to test the attributes and the levels of attributes selected for the study. On the other hand, it was regarded that it is important to test the design concerning such issues as the suitability of the number of stimuli. Thus, profile cards were developed according to the design presented above.

##### 4.4.4.1 Data collection procedure

Seven subjects participated in the preliminary conjoint study. The subjects were colleagues at Hanken, and they were not familiar with the study. In other words, these subjects were not the same subjects as in the pre-study. Each subject expressed their likelihood to buy a brand, i.e. preferences concerning both product classes by ranking the profile cards from the most preferred one in a purchase situation to the least preferred one. One session lasted between 15-30 minutes.

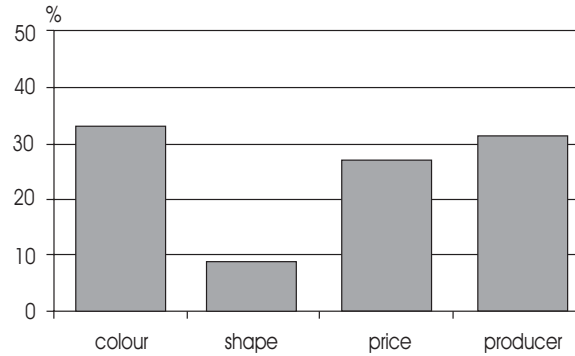
The preliminary conjoint study was designed according to the attributes and levels of attributes discussed previously. The stimuli were designed in cardboard that were cut and presented to the subjects according to the three shapes (landscape, portrait, and oval). In addition the profile cards were coloured according to the different colour levels (blue, green, yellow, and red). The levels of the attributes of producer and taste were written on the cards in letters whereas prices were expressed in numbers. The profile cards were designed so that they would bear some resemblance to actual packages.

##### 4.4.4.2 Findings

First, the results concerning the overall utility of the selected attributes are discussed. After that the estimated part-worths for colours are examined.

*Relative importance of attributes in product class 1 (painkillers)*

The results of the study concerning product class 1, i.e. painkillers, are visualised in Figure 22. Concerning goodness-of-fit for product class 1 the Kendall<sup>31</sup>'s tau was estimated to be 0.94 on an aggregate level. In other words, the correlation between the estimated and observed, or predicted and actual rank orderings, was considerable.

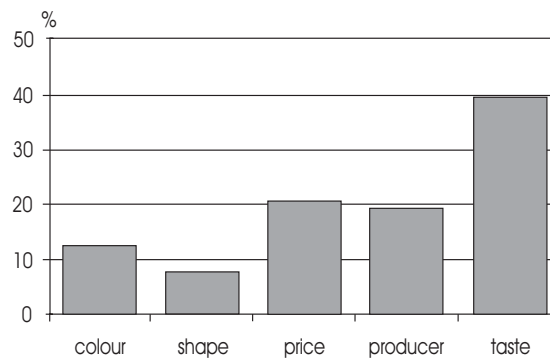


*Figure 22. Relative importance in product class 1 (painkillers)*

The figure shows that the attribute of colour accounts for 33.1 % of the importance contributing most to the overall utility among the attributes and the levels of attributes specified. Colour was followed by the producer (31.2 %), price (26.9 %) and shape (8.8 %).

*Relative importance of attributes in product class 2 (medicine against sore throats)*

The results concerning product class 2, i.e. medicine against sore throats, are visualised in Figure 23. Concerning goodness-of-fit for product class 2 the Kendall's tau was estimated to be 0.996 on an aggregate level. In other words, the correlation between the estimated and observed, or predicted and actual rank orderings, was considerable.



*Figure 23. Relative importance in product class 2 (medicine against sore throats)*

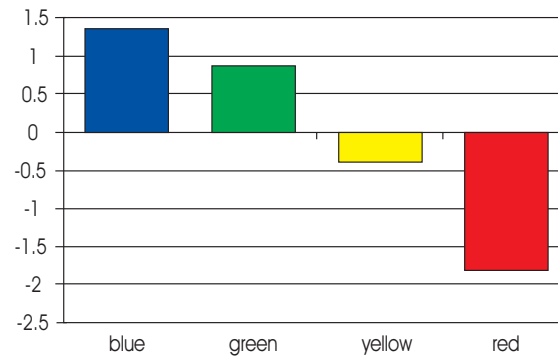
<sup>31</sup> A measure of how well observed rank-orderings are associated (correlated) with the estimated rank-orderings of the conjoint model. Kendall's tau is here used since the study have rank-ordered data, i.e. data measured on a non-metric scale.



The figure shows that the attribute of taste contributed 39.6 % to the overall utility. The attributes of producer (19.3 %) and price (20.7 %) both accounted for 1/5 of the overall utility. They were followed by colour (12.6 %), and shape (7.8 %).

*Estimated part-worths for colour in product class 1 (painkillers)*

The estimated part-worths for colours in product class 1, i.e. painkillers are visualised in Figure 24.

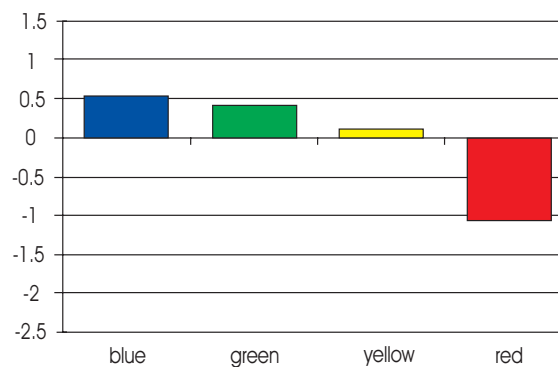


*Figure 24. Estimated part-worths for colours in product class 1 (painkillers)*

In product class 1, the colour of blue gained the highest part-worth (1.36), followed by green (0.85), and yellow (-0.39). Red was the least preferred colour level (-1.82).

*Estimated part-worths for colour in product class 2 (medicine against sore throats)*

The estimated part-worths for colours in product class 2, i.e. medicine against sore throats are visualised in Figure 25.



*Figure 25. Estimated part-worths for colours in product class 2 (medicine against sore throats)*

The figure above shows that in product class 2 the colour of blue gained the highest part-worth (0.54), followed by green (0.43), and yellow (0.11). The colour of red was the least preferred colour level (-1.07).

### Conclusions

The conclusion that can be drawn is, first of all, that the scores above for the relative importance of the attribute of colour for painkillers as well as for medicine against sore throats indicate that colours have an impact on choice preferences. In product class 1 the attribute of colour contributed most from the selected attributes. In product class 2 the attribute of colour contributed less than the attributes of taste, price and producer but more than the other selected design element, namely shape of the package.

Secondly, the results above show that the scores for the selected levels of the attribute of colours differ between the two product classes. Thus, the scores concerning the colours indicate that the impact of colours varies. In other words, the subjects perceived the colours in the two product classes differently, and it can be suggested that the scores show that the impact of colours is related to the product class.

A general conclusion from the preliminary conjoint is that the design works. This means that subjects were able to state their preferences. Thus, it appears that the selected attributes and levels of attributes had an impact on preferences. The subjects were asked about the suitability of the number of stimuli, and none of the subjects considered them to be too many. In other words, 16 stimuli per product class did not seem to be too many to state a preference for. To conclude, the number of stimuli appeared to be suitable.

#### 4.4.5 Designing the final conjoint study

Based on the preliminary conjoint study the final conjoint study was designed. This means that the results from the previous study were evaluated, and final decisions were made concerning the selection of attributes and levels of attributes that would be included in the design of the final data collection instrument. As said, it appeared in general that the design works; however, some changes to the design of the final conjoint study were made.

To begin with, the results of the preliminary study show that the price had an impact on preferences. Below are the scores for the part-worth utilities of the price levels.

*Table 5. Estimated part-worths for price in product class 1 (painkillers)*

Attribute	Level	Estimated part-worths
Price	2.15 €	1.76
	2.45 €	0.48
	3.50 €	-2.24

*Table 6. Estimated part-worths for price in product class 2 (medicine against sore throats)*

Attribute	Level	Estimated part-worths
Price	3.25 €	2.00
	3.60 €	0.12
	4.45 €	-2.12

An examination of the part-worth scores indicates that the lowest prices gained the highest scores in both product classes, which means that the subjects valued low price pharmaceuticals. This implies that the price is a complicated attribute when the results are compared with the findings in the pre-study, which were pretty much the opposite. The decision was to exclude the price from the final conjoint study. However, the most important reason for excluding the attribute of price was that the final study does not include brand names. Brand and price can be claimed to be closely related attributes, which indicates that brand knowledge means that the sensitivity to prices decreases. This reasoning was supported by the pre-study with authentic brands, which indicated that the price was of minor importance for the subjects when they stated their preferences. This means that the subjects in the pre-study were not price sensitive and aiming at lower prices. The reasoning is also supported by the fact that the market leader of painkillers is the brand with the highest price. Thus, one explanation for the scores above could be that subjects tend to prefer lower prices in experimental and test situations. In other words, it was seen in the preliminary conjoint study with hypothetical brands that when the price was included in the conjoint design the results indicate that consumers are price sensitive in experimental situations. As said, the pre-study indicated that this is necessarily not the case when analysing authentic brands, at least concerning painkillers.

Leaving out the price made it possible to include another attribute without increasing the number of stimuli. As a result, it was determined to include the attribute of font. This decision was based upon the fact that the subjects in the pre-study noted the font of the brand name. Moreover, it can be claimed that the focus of the study benefits from the fact that an additional design element was included in the study. Thus, in addition to the design elements of colour and shape of the package, the design element of font was included in the design of the final study.

Three fonts were selected for the text referring to the product class in question, i.e. painkillers or medicine against sore throats. It can be implied that the text of the product class represents the brand name. The selection is partly based on an interpretation of these fonts made by an esteemed package designer Mr Tuomas Kota<sup>32</sup> at one of the largest marketing communication companies in Finland. The selected fonts were intended to give rise to different interpretations. According to Mr Tuomas Kota the first one of the fonts conveyed the meaning of being a conservative brand, the second one can be interpreted as being a modern brand, and the third font conveyed the meaning of being neutral and a follower, indicating that the brand follows the market leader. The fonts of the brand names can be viewed in Appendix 8.

<sup>32</sup> Advertising agency Taivas 8.1.2003, Helsinki

A minor change concerned the attribute of shape. The number of levels of that attribute was unchanged. However, because of the forthcoming design of the final profile cards it was decided to change the shape of oval to the shape of square. This change made it possible to design the final profile cards so that the volume of the packages was unchanged. In other words, by keeping the volume of the three shapes the same it is possible to exclude the impact that the size of the package may have on the choice preferences.

As a result, it was determined that the final profile cards for painkillers (product class 1) were designed according to 4 attributes and 3 - 4 levels for each attribute.

*Table 7. Attributes and levels of attributes in product class 1 (painkillers)*

<b>A T T R I B U T E S</b>	<b>L E V E L S</b>				
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
	<b>Colour of the package</b>	Blue	Green	Yellow	Red
	<b>Shape of the package</b>	Landscape	Portrait	Square	
	<b>Font</b>	1	2	3	
	<b>Producer of the product</b>	Known local	Unknown local	Known foreign	Unknown foreign

The outcome of this product class was  $4 \times 3 \times 3 \times 4 = 144$  stimuli.

The profile cards for medicine against sore throats were designed with the same attributes and number of levels as the profile cards in the previous product class. However, in addition, this product class included also the attribute of taste. As a result, the profiles were designed with 5 attributes and 3 - 4 levels.

*Table 8. Attributes and levels of attributes in product class 2 (medicine against sore throats)*

<b>A T T R I B U T E S</b>	<b>L E V E L S</b>				
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
	<b>Colour of the package</b>	Blue	Green	Yellow	Red
	<b>Shape of the package</b>	Landscape	Portrait	Square	
	<b>Font</b>	1	2	3	
	<b>Producer of the product</b>	Known local	Unknown local	Known foreign	Unknown foreign
	<b>Taste</b>	Menthol	Honey and lemon	Mint	Neutral

The outcome of this product class was  $4 \times 3 \times 3 \times 4 \times 4 = 576$  stimuli.

#### 4.4.6 The final fractional design

To sum up, in accordance to the preliminary conjoint, the final conjoint study is a traditional conjoint that applies the following:

- additive model
- additive composition rule (main effects only)

Fractional design used

- full-profile approach
- fractional factorial design
- orthogonal design
- non-metric rank-order scaling

Estimation techniques

- ordinal least square
- goodness-of-fit (Kendall's tau)

The fractioning resulted in 16 profiles in each product class in the final study similarly as in the preliminary conjoint study.

The final design matrixes are shown in the following figures.

*Table 9. Final design matrix for product class 1 (painkillers)*

<b>Nr</b>	<b>Colour</b>	<b>Shape</b>	<b>Font</b>	<b>Producer</b>
1	2	1	1	3
2	4	1	1	1
3	3	2	1	2
4	1	3	1	4
5	4	2	1	4
6	3	1	1	3
7	2	3	1	2
8	4	1	3	2
9	1	2	3	3
10	3	3	3	1
11	3	1	2	4
12	1	1	1	1
13	2	1	3	4
14	1	1	2	2
15	4	3	2	3
16	2	2	2	1

*Table 10. Final design matrix for product class 2 (medicine against sore throats)*

<b>Nr</b>	<b>Colour</b>	<b>Shape</b>	<b>Font</b>	<b>Producer</b>	<b>Taste</b>
1	3	2	1	3	4
2	1	3	2	2	4
3	4	2	3	2	1
4	2	1	3	4	4
5	1	1	1	1	1
6	3	3	3	1	3
7	4	1	2	3	3
8	4	3	1	4	2
9	3	1	2	4	1
10	4	1	1	1	4
11	2	3	1	3	1
12	1	1	3	3	2
13	2	1	1	2	3
14	2	2	2	1	2
15	3	1	1	2	2
16	1	2	1	4	3

The final conjoint analysis used the design matrixes above as they appeared as feasible and appropriate for the present study. The final conjoint excludes the attribute of price, which means that no attribute that can be considered to have extreme values was included in the final study.

The combinations of attributes and levels of attributes, i.e. stimuli of the final conjoint study are listed in Appendix 7 in more detail.

#### 4.4.7 Designing the final data collection instrument

The next phase of the design of a conjoint study is to decide upon how the stimuli are presented to the subjects.

Conjoint studies can be performed by using a verbal description approach or a visual approach. Verbal approach means that the stimulus is written, for example, on a profile card. In a visual approach the attributes and the levels of attributes are illustrated as pictures. Lately, there has been some discussion regarding the impact of pictorial representation of stimuli in conjoint studies. In a product design context Vriens et al. (1998) found that design elements were understood better when they were illustrated, although verbal descriptions made it easier to judge the stimuli.

The present study was carried out by using hypothetical packages as stimuli aiming at imitating real life. Thus, a total number of 32 (16 + 16) packages were designed and produced. This means that the colours, shapes and fonts and their levels were presented visually. For example, the level of red was expressed as a red pigment. The attributes of producer and taste were presented verbally. This means that the producer was expressed verbally as a '*known local producer*' without a producer name. In addition, the taste was expressed as '*lemon and honey*' without a symbol attached to it. A photograph of the packages is found in Appendix 8.

Such attributes as material and package volume were identical for all packages. This concerns product information as well.

The packages were designed by two students at the Lahti Polytechnic enrolled in a four-year programme on package design. The students were given free hands in designing the packages in accordance with the attributes and levels discussed earlier. Various drafts were evaluated by colleagues and other associated persons. Comments by Mr Tuomas Kota were appreciated, particularly regarding the attribute of font. Finally, the packages were printed and assembled.

#### 4.5 QUALITATIVE DESIGN

The second part of the empirical study was designed to answer the third research question, which was to see how an analysis of these relations could be carried out in order to increase the understanding of the impact of colours on decision-making in low-involvement.

It was assumed that this research question could be answered by analysing the motivations behind the rankings of the profile cards. In order to fulfil this task, interviews were conducted. It was assumed that hereby it would be possible to get deeper into the 'Whys' of the behaviour of consumers in order to gain an understanding of the impact of colours. A qualitative approach was taken to analyse the interviews. The data reduction procedure is discussed in Chapter 6.

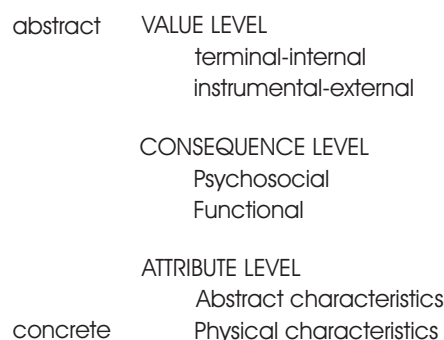
The interviews were conducted by performing focused or semi-structured interviews. This means that no pre-planned or structured questions existed, as is the case in structured interviews. However, the questions were not open-ended without a clear direction as they are in unstructured interviews (Punch 1998). Thus, the purpose of the interviews in this study was to get in-depth and open-minded information within clearly specified areas. It should be stressed that the interviews were made simultaneously with the final conjoint study and that these interviews directly concerned the behaviour of the subjects in the final conjoint study.

#### 4.5.1 Laddering method and means-end-chain

The laddering method is often referred to as an interviewing technique as well as a data reduction procedure. This section describes how laddering as an interviewing technique was applied in the present study.

The laddering technique involves an in-depth, one-on-one interviewing technique. In general it can be stated that laddering is utilised in order to gain an understanding of the associations that are linked to, for example, brand and product attributes. The core of this technique is that it aims at revealing how these attributes are related to the consumer herself (Reynolds and Gutman 1988). These are referred to as means-end connections or attribute – consequence – value chains, and it is considered that consumers' brand and store decisions are based on these connections or chains (Reynolds and Whitlark 1995). The laddering interviewing technique is suggested as a technique that can be used to gain an understanding of the different levels of abstraction that are related to the brands and products, for example. These abstractions can also be referred to as product meanings. These levels can be distinguished in a so-called means-end-chain (Reynolds and Gutman 1984; 1988; Gutman 1982).

The abstraction of product meanings in a means-end-chain is visualised below (Reynolds and Gutman 1984; 1988; Gutman 1982).



*Figure 26. Means-end-chain*  
(Reynolds and Gutman 1984:29)

As said, the means-end-chain distinguishes between different levels of abstraction by attributes, consequences and values. These levels stand for networks of associations. Attributes are features or aspects of brands and products (Reynolds and Gutman 1984). Consequences are defined as something that accrues from the purchasing, using or



consuming of brands and products. Evidently, consequences may be positive or negative, i.e. desirable, such as benefits, or undesirable, such as disadvantages. Finally, values are reinforced by the purchase, usage or consumption of the brands and products. They are linked to beliefs that consumers hold about themselves, and to what they believe others hold about them. These values determine the desirability of the consequences (Reynolds and Gutman 1984).

The means-end-chain can be exemplified by the case of Sandra. In the scenario presented in the beginning of this study Sandra goes to the shelf displaying painkillers, but in another scenario she might instead go to a shelf displaying medicine against sore throats. To begin with, it can be assumed that she probably observes the various brands and such attributes that appear on the packages - the prices, brand names, and such design elements as colours and sizes of the packages (*physical characteristics*). She may also evaluate such characteristics of the brands as the ingredients of the pharmaceuticals (*abstract characteristics*). These attributes may bring consequences of using the brands into mind. For instance, a specific ingredient may bring into mind a specific taste, which reminds her of freshness. This freshness may further indicate that she is able to concentrate during the lecture (*functional consequence*) and, for example, being able to take part in discussions (*psychosocial consequences*). As said, the consequences indicate the benefits of the attributes. If Sandra is asked why it is important to be able to concentrate and take part in discussions, she may answer that she wants to be regarded as intelligent (*external value*), and that it increases her self-esteem (*internal value*).

Based on the example above the following ladder can be drawn according to the means-end-chain. In the ladder below (V) is an abbreviation for value, (C) means consequence and (A) stands for attribute.

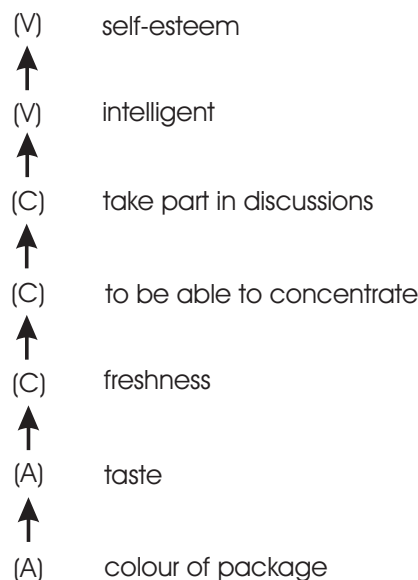


Figure 27. An example of means-end-chain

Laddering suggests that the preference stated by a consumer followed by motivations to the preference is one method to gain an understanding of reasons why, for example,

some brands are preferred over others (Reynolds and Gutman 1988). This specific type of method is referred to as the Preference-Consumption difference. As suggested by Reynolds and Gutman (1988) this indicates that preference order or ranking of the brands is followed by questions such as '*Why is brand A the most desirable*' or '*What is it that makes brand A the least preferred*'. For example, assuming that the consumer mentions a specific brand or package attribute, the answer is followed by similar questions as exemplified above, and the aim is to get deeper into the consequences of that specific attribute.

#### 4.5.2 Applied laddering interviewing technique

The present study applied the laddering interviewing technique in the second part of the empirical study. This is motivated with that this part of the study was about gaining an understanding of the impact of colour on the package. Following the fact that the first part of the empirical study was rank ordering, it seemed natural to conduct interviews in order to find reasons for the preferences immediately after the ranking was done.

As said, it is essential to emphasise that the present study applied the laddering technique. It must be pointed out that the fundamental purpose of laddering is to lead the subject to associate the brand to herself, i.e. to find personal values. This means basically that the consequences as well as values that are detected by using the laddering technique are linked to the subject itself. In such cases the purpose would be to find out what consequences an attribute such as colour for example has for the subject and what values it reinforces.

As can be recalled, the focus in this study was foremost on the colour – product relation, and the focus on that relation steered how laddering was applied in the present study. This means that this study did not aim at detecting complete means-end-chains, i.e. attribute – consequence – value chains. In fact the study aimed primarily to detect *attribute – consequence* chains. This means that the study assumed that by applying the laddering technique, attributes and consequences that were associated with the colour and linked to the product could be detected. In other words, this study aimed at detecting attributes and consequences that were linked to the product itself rather than to the subject.

## 5 DATA COLLECTION FOR THE FINAL STUDY

This chapter deals with how the empirical study was implemented. In other words, practical issues concerning data collection are discussed. First, the sampling procedure is explained, and then the data collection procedures are discussed.

An important characteristic of the data collection is that both the quantitative data and the qualitative data were collected simultaneously in the final study. This means that each subject was interviewed simultaneously as they were performing the ranking. Thus, simultaneously as the subjects put a profile card in a particular position they were immediately asked about the reasons for that ranking. In other words, they were asked to motivate their preferences.

Another important notion of the data collection procedure is that each subject ranked the profile cards in both product classes, i.e. the packages for painkillers (product class 1) and the packages for medicine against sore throats (product class 2). Thus, every subject participated in both conjoint tasks. Hereby every subject took part in two laddering interviews as well. As a result, each subject ranked 16 packages in two product classes simultaneously motivating their preferences.

### 5.1 SAMPLE

The exploratory nature of this study means that the study aimed at understanding the particular phenomenon of the study in depth, i.e. colour in a given context. It means also that the present study involved a small-scale sample. This indicates that the size of the sample is not crucial. Instead it must be pointed out that the study has focused at testing whether the empirical design is able to produce plausible answers to the research questions. Thus, it is important to emphasise that the findings of the study are limited to the sample studied.

#### 5.1.1 Sampling procedure

18 subjects participated in the final conjoint study. 16 subjects were master level students at Hanken. Two of the subjects were doctoral students at Hanken. The age of the subjects ranged between 19 and 30 years. Female subjects represented one half of the sample and male subjects represented the other half of the sample. The study was based on a non-probability sample, more closely a convenience sample.

## 5.2 DATA COLLECTION PROCEDURES

Because the present study involved 18 subjects taking part in all the tasks, the study contains altogether 36 conjoint and 36 interviews (2 product classes x 18 subjects). Data collection took place in one of the seminar rooms at CERS<sup>33</sup> at Hanken. The facility provided convenience as well as peaceful surroundings to perform the study and to collect data. With permission from the subjects the interviews were tape recorded, and notes were also taken. One session lasted between 30 - 75 minutes.

The sessions started by an oral presentation of the following scenario.

### *SCENARIO:*

*Imagine a scenario in which you have a terrible headache/sore throat. You have an early lecture which you have to attend. You realise that you need to do something to be able to concentrate on the second lecture, and you go into a pharmacy which happens to be a self-service store. You are not a regular customer, so you wave to a pharmacist to assist you. However, all pharmacists are busy with other customers. You are in a hurry and cannot wait. You find a shelf displaying the product class in question. The core products behind the brands are indistinguishable, which means that the core products are very similar. The sizes of the packages are similar as well. The brands claim to cure the same symptoms, and it is really hard to decide on which product features are the most important. The list of contents on the packages does not help much, nor does the price have an impact.*

Thus, the subjects were supposed to imagine a scenario where they were supposed to have a minor illness.

The first scenario indicated that the subject had a tremendous headache, whereas the second scenario suggested that the subject had a sore throat. In other words, the subjects were supposed to imagine themselves in a scenario in which they are going into a store, i.e. a pharmacy having an illness that needs to be cured. This being an experimental study it was concluded that a scenario would be, on the one hand, essential to elicit the starting point of the study. On the other hand, it was assumed that it would assist the subjects to engage themselves in the experimental setting and to conduct the tasks.

### 5.2.1 The conjoint procedure

Based on experience gained from the preliminary conjoint study, it was determined that the profile cards, i.e. the packages of painkillers (product class 1) should be ranked first. It appeared that it was easier to rank the packages of medicine against sore throats (product class 2) due to the attribute of taste. Thus, the specific order was determined in order to avoid a situation where the ranking of product class 2 would influence the ranking of product class 1.

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<sup>33</sup> Centre for Relationship Marketing and Service Management

The experiment started by placing 16 profile cards, i.e. the specially designed packages or hypothetical brands, in random order on a table. Differences and similarities between the profile cards were pointed out to the subjects. There appears to be various approaches in previous conjoint studies concerning whether the attributes and the levels of attributes are pointed out before the study or not. In this study the assumptions made by Jaeger et al. (2001) are followed. They contend that when making the subjects aware of the various attributes and their levels the conjoint results may be improved. Thus, such differences as the producers, colours, shapes and fonts were pointed out in this study, as well as similarities between the profile cards like the amount and the sizes of the tablets, prices, and ingredients; the purposes of the pharmaceuticals were also emphasised. When the first task was performed the profile cards were gathered in the ranking order given by the subjects.

The second task started by presenting the second scenario simultaneously as the profile cards in product class 2 were placed on the table. In accordance with task 1, differences as well as all similarities between the cards were emphasised. When the second task was performed, the profile cards, i.e. packages were gathered in the ranking order given by the subjects.

In accordance with the preliminary conjoint study, it appeared that it was easier to state preferences concerning medicine against sore throats, i.e. product class 2 than to perform the same concerning painkillers, i.e. product class 1. In addition, it appeared that it was easier to rank the most popular ones, i.e. those cards that the subjects preferred, and the least popular ones, i.e. those that the subjects did not prefer. Thus, it turned out to be most difficult to state a preference for the profile cards situated in the middle of the ranking. However, none of the subjects gave up, nor did anyone claim that the task was insurmountable to perform.

### 5.2.2 The interviewing procedure

As said, the subjects were interviewed simultaneously as they performed the rankings. This means that the subjects were encouraged to motivate the preferences by speaking out loud simultaneously as the conjoint tasks were carried out. The objective was to get the subjects to talk about their spontaneous thoughts about the profile cards, i.e. packages including the various attributes and levels of attributes. If spontaneous comments did not appear, questions in accordance with the laddering technique were asked. This includes asking questions about the different attributes and levels of attributes in order to gain an understanding of these. In other words, questions that were asked were, for example, '*Why is brand A the most preferred one?*'. If the subject answered the question by referring to the colours of the package the following question was, for example, '*Why did the attribute of colour make a difference on your preference?*' and '*Why is that important?*' and so on.

As said, the interviews had a clear focus, although the structures of the interviews were dependent on the structure of the ranking as well as on the comments made by the subjects. In general no interviews were similar. Some subjects stated clearly that the most important attribute is the producer, and that is all that counts. In addition, they

claimed that everything else is random. However, these subjects were also asked to comment on the various attributes, although these comments were presented after the ranking. This means that these subjects were asked, if they noted the various attributes and, if they also in real life chose brands according to the producer only.

In general, it can be pointed out that most of the subjects were talkative and enthusiastic about the tasks, and did not need much guidance. This means that they were not asked many questions as they motivated their preferences spontaneously anyway. However, some needed more encouragement in form of interviewing. This means that these subjects were asked more questions, and they had perhaps more difficulties in stating their motivations for the preferences. Due to these different aspects of the interviews, it can be implied that the interviews required, in some respects, sensitivity towards acknowledging the personality of the subjects in order to create relaxed and informative sessions.

## 6 EMPIRICAL FINDINGS

This chapter examines the findings of the final study. The chapter reports on how data was analysed and how findings emerged and results were drawn.

The chapter begins with examining the findings of the first part of the empirical study, namely the quantitative study. This means that results are presented, and linked to the first and second research question.

After this the findings of the second part of the study are examined. In that part data was processed qualitatively. As a consequence, a discussion is given to how data was processed, namely how data was reduced into findings. In addition the findings are linked to the third research question.

### 6.1 FINDINGS OF THE QUANTITATIVE STUDY

Conjoint analysis produces results both on an individual and a group or aggregated level. On the one hand, it means that it is possible to analyse the utility of attributes and their levels for each subject separately. On the other hand, average utilities for the total sample or parts of it can be attained by using aggregate estimation techniques. This study reveals primarily only the results that emerged on a group or aggregated level. This is due to the fact that the study has focused on colour as a general phenomenon.

The examination of the results begins with presenting the overall results. After that the results are analysed in accordance with the specific research questions focusing on the attribute of colour.

#### 6.1.1 Presentation of the results

The overall results on group level are presented first for product class 1 and then for product class 2.

##### Product class 1 (painkillers)

Concerning the goodness-of-fit for product class 1, the Kendall's tau was estimated to be 0.983 on a group or aggregated level. In other words, the correlation between the estimated and observed, or predicted and actual rank orderings can be considered as high.

*Table 11. Group results for estimated part-worths and the relative importance of attributes in product class 1 (painkillers)*

Attribute	Level	Estimated part-worths	Relative importance (%)
Colour	Blue	1.08	31.5
	Green	0.58	
	Yellow	- 0.59	
	Red	- 1.07	
Shape	Landscape	1.37	19.4
	Portrait	- 0.05	
	Square	- 1.32	
Font	1	0.31	8.9
	2	0.19	
	3	- 0.50	
Producer	Known local	2.43	40.2
	Unknown local	- 0.53	
	Known foreign	1.38	
	Unknown foreign	- 3.28	

Table 11 shows, first of all, the estimated part-worths for each level of each attribute. Second, the relative importance of each attribute is shown.

As pointed out by previous research (Monteiro and Lucas 2001) the interpretation of the results is simple. When it concerns painkillers, the relative importance of each attribute shows that the subjects felt that the producer of the product was perceived as the most important attribute. It must be noted that this is valid only among the attributes and the levels of attributes specified in this study. The attribute of producer accounted for 40.2 % of the relative importance. The second most important attribute was colour, i.e. colour of the package, accounting for 31.5 % of the relative importance. The attribute of shape, i.e. the shape of the package, was placed as the third most important attribute. It accounts for 19.4 % of the relative importance. The attribute of font, i.e. font of the so-called brand name, was perceived as the least important attribute accounting for 8.9 % of the relative importance. A general finding was that colours out of the attributes defined contributed with close to 1/3 of the overall importance.

When it concerns the specific levels of attributes, the part-worth estimates for colours show that the colour blue was the most preferred attribute level, whereas the colour red was the least preferred. The scores of colours are examined more thoroughly in the next sections.

When it comes to the shapes of the packages, the results indicate that the subjects preferred packages with the shape of a landscape. This preference is in line with how most of the existing packages of authentic painkillers are shaped. Thus, the majority of brands of painkillers including the market leader provide their products in this shape. The subjects in this study preferred painkiller medicine in square packages least.



The third design element is font. This attribute has the smallest range among the part-worth estimates, and it indicates that font was the least preferred attribute in this study. The results show that the subjects preferred most font number 1, which was assumed in the design of the final conjoint study to convey meaning of being a conservative brand. The second most preferred one was font number 2, and this font stands for a modern brand. The least preferred one was font number 3, and it was declared to convey the meaning of being a neutral font representing a follower, which indicates that the brand in question follows the market leader.

The greatest range among the part-worth estimates was found among the part-worth estimates of the attribute of producer. This range indicates that producer was the most preferred attribute. The estimates show that the subjects appreciated well-known producers, both local and foreign. Known foreign producer was preferred more than the unknown foreign producer, which was the least preferred attribute level.

*Product class 2 (medicine against sore throats)*

When it comes to the goodness-of-fit for product class 2, the Kendall's tau was estimated to be 0.845 on a group or aggregated level. This estimation shows that the correlation between the estimated and observed, or predicted and actual rank orderings was not as considerable as in the previous product class.

*Table 12. Group results for estimated part-worths and the relative importance of attributes in product class 2 (medicine against sore throats)*

Attribute	Level	Estimated part-worths	Relative importance (%)
Colour	Blue	0.47	20.4
	Green	0.89	
	Yellow	1.00	
	Red	- 2.36	
Shape	Landscape	0.51	11.6
	Portrait	0.46	
	Square	- 0.97	
Font	1	1.26	12.6
	2	- 0.39	
	3	- 0.87	
Producer	Known local	1.03	18.7
	Unknown local	0.51	
	Known foreign	- 0.62	
	Unknown foreign	- 0.92	
Taste	Menthol	1.42	36.7
	Honey and lemon	0.40	
	Mint	0.47	
	Neutral	- 2.29	

Table 12 shows in accordance with the previous table the part-worth estimates for each level of each attribute and the relative importance of each attribute.

The relative importance of each attribute shows that the subjects felt that the taste of the product was the most important attribute accounting for 36.7 % of the relative importance. Taste was followed by the colour of the package (20.4 %) and the producer of the product (18.7 %). Of the predicted attributes font (12.6 %) was positioned as fourth, whereas the shape of the package (11.6 %) was positioned as the fifth, and was the least preferred attribute.

The attributes can be said to fall into three groups in this product class. Thus, the scores indicate, first of all, that the attribute of taste was clearly perceived as the most important attribute. On the one hand, it seems that the relative importance of the colour and the producer were about the same forming a second group. The relative importance of the shape and the font are about the same, but on a lower level as compared to the previous group. Evidently, the most obvious difference between the two product classes is that product class 2 includes one additional attribute, i.e. taste. Therefore, the results in the two product classes are not directly comparable. Nevertheless, some comparison can be done.

By examining the estimates of the individual attributes and their levels, it can be found that the part-worths for colours show that the colour of yellow was the most preferred, whereas the colour of red was the least. Colours are examined more thoroughly in the next sections.

Concerning the attribute of shape, it appears that the subjects preferred portrait as well as landscape almost equally. The shape of square was least preferred, which was also the case in the previous product class.

The preference for the three different fonts was in line with the preferences for them in the previous product class. Thus, the subjects valued most font number 1, followed by font number 2 and font number 3. In other words, the so-called conservative font was the most preferred, followed by the modern and the neutral fonts.

One obvious difference between the two product classes was how the attribute of producer was perceived. In product class 1 (painkillers) the producer was the most important attribute gaining 10 % more relative importance than the second most valued attribute, which was the colour of the package. In product class 2 (medicine against sore throats) the attribute of producer was positioned closely to the attribute of colour, however, after the colour. In other words, it was positioned as the third most valued attribute. Further it can be found that in product class 1 known producer, both local and foreign, was more preferred than unknown producer. In product class 2, on the other hand, local producer, both known and unknown, was preferred more than foreign producer.

As said, taste appeared to be the most valued attribute in product class 2. The taste of menthol was most preferred, whereas a neutral taste without a specific flavour was the least valued. Mint as well as honey and lemon were preferred about equally.

### 6.1.2 The impact of colours

The first research question was defined as

*Do colours on packages have an impact on decision-making in low-involvement purchasing?*

The question was answered by analysing how the subjects perceived the attribute of colour in relation to the other specified attributes, i.e. by examining the relative importance of the attribute of colour. The product classes are mainly examined separately, although they are compared to each other too. The group results concerning the relative importance of each attribute are presented graphically.

The estimated relative importance of each attribute for both product classes is presented on an individual level in Appendix 9. As said, this study was primarily only interested in the results that emerged on a group level, as the study focused on colour as a general phenomenon. The figures in Appendix 9 visualise on an individual level how the subjects preferred particularly the attribute of colour in relation to the other design elements of the study. The estimated Kendall's tau is also showed for each subject. A notion is that the goodness-of-fit in product class 2 for subject number 4 is very low, which assumingly has had a negative impact on the estimated Kendall's tau on the group level in that product class.

#### Product class 1 (painkillers)

First, the group results concerning the relative importance of the attributes for product class 1, i.e. painkillers are visualised.

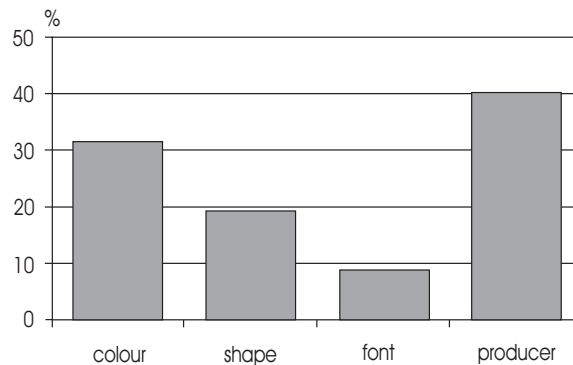


Figure 28. Relative importances in product class 1 (painkillers)

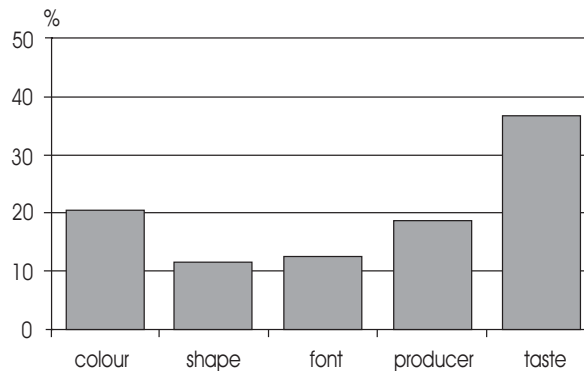
As noted already in the previous section the group results for product class 1 show that the attribute of colour accounted for close to 1/3 (31.5 %) of the relative importance. The attribute of producer accounted for 40.2 %, whereas shape accounts for 19.4 % and font for 8.9 %.

Of the four attributes defined in the study, three can be regarded as design elements, i.e. colour, shape and font. It can, in other words, be stated that colour was the most valued design element of those that are specified on the packages. The conclusion is that the

attribute of colour in the sample had a clear impact on how the subjects ranked the packages for painkillers.

#### Product class 2 (medicine against sore throats)

The group results concerning the relative importance of the attributes for product class 2, i.e. medicine against sore throats are visualised below.



*Figure 29. Relative importances in product class 2 (medicine against sore throats)*

The figure shows that the attribute of taste was valued most accounting for more than 1/3 of the importance value (36.7 %) followed by colour (20.4 %) as the second most valued attribute. In this product class colour was valued even slightly more than the producer (18.7 %). As noted, the other design elements of packages, namely font and shape were clearly less valued (12.6 % and 11.6 %).

As in the previous product class the scores for the attribute of colour imply that colour was the most valued design element of our three design elements. Thus, it is fair to claim that the attribute of colour had an impact on the ranking of the packages in this product class as well.

#### Conclusions

In conclusion, the scores for the relative importance of the attribute of colour indicate for painkillers as well as for medicine against sore throats that colours had an impact in the present study. This holds at least in our sample and for the two product classes analysed. This conclusion is supported by the results in the preliminary conjoint study (see figures 22 and 23). In other words, the study postulates that colours have an impact on the decision-making in low-involvement purchasing. Thus, the results indicate that the first research question can be answered by a *yes*.

### 6.1.3 Colour – product class relations

The second research question was defined as

*If colours have an impact on the decision-making in low-involvement purchasing, is that impact of colour related to the product class in question?*

This research question was answered by comparing the results of the two product classes, i.e. the part-worth estimates for colour levels.

The estimated part-worths for the attribute of colour for both product classes are presented on an individual level in Appendix 10. The tables show that the preferences for the colour levels varied, although a pattern that goes in line with the group results can be detected. This concerns particularly the most preferred colour blue and the least preferred colour red in product class 1, and the most preferred colour yellow and the least preferred colour red in product class 2.

#### Product class 1 (painkillers)

First, the estimated part-worths for product class 1, i.e. painkillers are examined. The results are on an aggregate level.

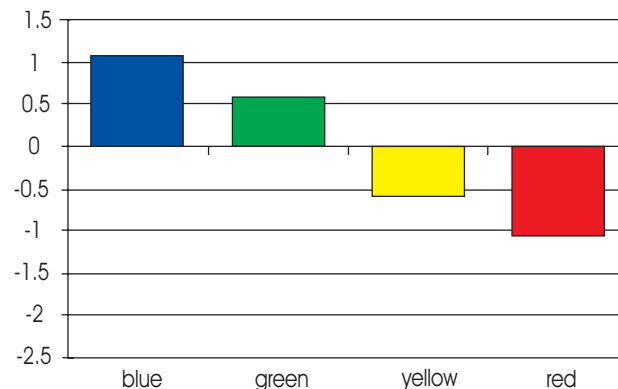
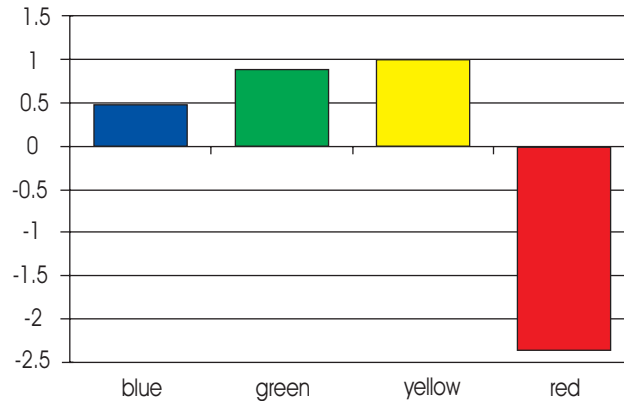


Figure 30. Estimated part-worths for colours in product class 1 (painkillers)

In product class 1, the colour of blue gained the highest part-worth (1.08), followed by green (0.58), and yellow (-0.59). The colour of red was the least preferred colour level (-1.07). It can be seen that the levels of blue and green were clearly valued more than the levels of yellow and red in this product class. Thus, it seems that where painkillers are concerned, cool colours were more preferred than warm colours.

*Product class 2 (medicine against sore throats)*

Second, the estimated part-worths for product class 2, medicine against sore throats are reported. The results are on an aggregate level.



*Figure 31. Estimated part-worths for colours in product class 2 (medicine against sore throats)*

The figure above shows that in product class 2 the colour of yellow gained the highest part-worth (1.00), followed by the colour of green (0.89) and blue (0.47). The colour of red was the least preferred colour (-2.36). The estimates suggest that yellow and green but also blue were valued more or less similarly in this product class, while red seems to be regarded as inappropriate.

*Conclusions*

A comparison of the colour part-worths of the two product classes indicates that the subjects perceived the colours in the two product classes differently. The most evident difference between the product classes is the fact that blue obtained the highest part-worth in product class 1 (painkillers), and that yellow received the highest part-worth in product class 2 (medicine against sore throats). In both product classes the highest valued level was followed by green as the second most-valued colour. In painkillers green was followed by yellow, whereas green was followed by blue in medicine against sore throats. Red was the least-valued colour level in both product classes. Thus, the colours of yellow and blue change place when moving between the two product classes.

In conclusion, the estimated part-worths suggest that the impact of colours vary. This holds at least in our sample and for the two product classes analysed. This conclusion is in fact supported by the results in the preliminary conjoint study (see figures 24 and 25). In other words, the study postulates that the impact of colours on the decision-making in low-involvement purchasing vary according to the product class. Thus, it can be claimed that the second research question can be answered by a *yes*, i.e. that the impact of colours is related to the product class.

## 6.2 FINDINGS OF THE QUALITATIVE STUDY

The qualitative part of the study aimed at answering the third research question, which was defined as

*If colour – product relations are detected, how could an analysis of these relations be carried out in order to increase the understanding of the impact of colours on decision-making in low-involvement purchasing?*

The results examined previously suggest that colours have an impact and that the impact is related to the product class. Hereby a colour – product class relation has been detected. Basically, examining and analysing the motivations expressed by the subjects during the rankings answered the third research question. The study analysed primarily the motivations that concern colours. Thus, the main objective of this section is to report how the examination and analysis of the colour – product class relations was carried out in order to find out if an analysis of the relations can increase the understanding of the impact of colour.

The qualitative data was processed in three phases. To begin with, data was reduced into major themes. In the present study four themes emerged from the comments concerning colours, namely

- colours as a means of attracting *attention*
- colours and *aesthetics*
- colours as a means of *communication*
- other comments

Second, the findings within the themes were processed by applying laddering. Third, the laddering findings were penetrated further by applying a semiotic approach.

Below the themes and the findings within them are discussed, which means that the data reduction, namely the processes of data coding and data analysis, is described. These discussions also aim at explaining how the themes emerged from the data. Further, discussions are conducted on how the study has applied laddering as a technique to elicit findings, and there after laddering findings are reported on. Third, the section explains how the semiotic approach has been applied to further penetrate the laddering findings.

### 6.2.1 The process of data reduction – coding and analysis

In addition to the data collection technique a central issue in a qualitative design is data coding and data analysis, in other words, the way in which the qualitative data is processed. This phase is also referred to as data reduction. In the present study data reduction was based on the tape-recorded and transcribed interviews. According to Miles and Huberman (1994) data reduction involves such issues as coding, finding themes, and making clusters, i.e. processing - condensing and ordering - of the data into

a form from which findings begin to emerge. Therefore, data reduction not only stands for the core coding but is also a part of the analysis itself.

According to Coffey and Atkinson (1996) the process starts by identifying key themes or patterns. Data collection as well as data reduction was steered by the focus in the present study. In the present study the processing of the data focused on finding information about the impact of colour. Thus, the main theme of data reduction was established.

Coding indicates categorising the data, and it should be led by the aims of the study together with the research questions and the conceptual framework of the study (Punch 1998). In the current study the theme of the information sought for as well as a pre-understanding of the forthcoming coding process existed before the process, although the final structure of the coding emerged from the data. This means that it was all the time recognised that the coding process was explorative, and had to be performed open-minded.

As said, the emphasis on colours steered the data reduction process in this study. According to Punch (1998) two types of codes exist: descriptive and inferential codes. Accordingly, data was first coded with the so-called descriptive codes that function as summarising labels without hardly any inference from the data itself. In the current study it appeared that it was natural to start the coding by categorising data according to the levels of the attribute of colour. Hereby, the initial codes were labelled as *blue*, *yellow*, *green*, and *red*. In addition, one code was labelled as *colours in general*, and it stands for data about colours without any connection to a specific colour level. It includes comments such as '*The colours have been thought about*', '*Peculiar colours in this context*', '*The colour does not matter when the taste is neutral*'. '*The colours and the tastes do not match*' and '*When you are feeling ill you do not want to look at colours you do not like*'. However, the other codes stand for all data concerning the colour level in question. Thus, the code red, for example, involves such comments as '*Red is effective*', '*Red is too strong for medicine*' and '*Red looks good*'. Basically this categorisation means that hardly any inference of the data was done. It should be noted that both product classes were coded with the same codes.

Inferential or pattern codes function on a higher level of abstraction aiming at abstracting the descriptive codes (Punch 1998). It is implied that these codes require interpretation and inference of data and this is evident in the coding process of this study as well. A thorough examination of the initially coded data resulted in a pattern emerging. Thus, specific themes could be high lightened. These appeared from such comments as colours being pleasant on a personal level, as having an associative function, as well as on comments where managerial issues were pointed out. The comments were first coded with caution. This means that it was all the time realised that new themes might appear from the data. However, gradually a more fixed approach was taken. Gradually it also appeared that the themes corresponded to the functions of colours emphasised in the theoretical framework of the present study. Hence, the themes were labelled as *attention*, *aesthetic*, *communication*, and *other comments*. Further, it appeared that comments on attention involved notions that could be related to the discussion of the voluntary as well as non-voluntary attention. Also, this was a finding



that is in line with the discussion that is conducted when presenting the literature framework of this study.

It can be implied that the codes of attention, aesthetic, and communication represent data that can increase the understanding of the impact of colour. The code of other comments stands, on the one hand, for data that describe the interpretations made by the subjects concerning the aims of the designer or manager regarding the colour selection. This means that the subjects did not motivate their rankings with these comments. They are basically only general comments concerning, for example, the use of colours on packages from a managerial point of view. Thus, this code includes such comments as *'Companies want to use strong colours'* and *'The producer has thought about the appearance'*. It can be postulated that these comments may, at least in some respect, be influenced by the fact that the subjects were business students. Therefore, it can be claimed that the comments did not actually contribute to the understanding of the impact of colours from a consumer point of view. On the other hand, the latter code includes comments that involve the notion of colours only implicitly, i.e. the comments are not directly related to colours. This can be exemplified by the following comment *'If I have a tremendous headache, and rush into a store I will probably seek with my instincts'*. As a result, this code is not examined separately as a specific theme.

Miles and Huberman (1994) and Punch (1998) point out that codes, particularly at this level, i.e. inferential or pattern codes, must be defined. This emerged as a natural task to be performed in this study, too. Basically, it appeared that codes must be defined in order to be able to code data consistently. As pointed out, it not only has an impact on the reliability of the study (Miles and Huberman 1994), but it appeared that it keeps the coding process on track as well.

The qualitative data in this study was coded by using a software called Nvivo version 2.0. Due to this tool the coding process not only becomes more structured, but it is also fair to claim that it increases the reliability of the study as well. This can be motivated with the fact that various reports can be produced; for example, reports that are based on a specific code. Thus, it is easy to inspect how data is interpreted and how codes have emerged. This also means that it is possible to compare codes and subjects with each other. Also the structure of the codes and their inter-relations are easily displayable. In this study, reports based on the initial codes were created first. As said, based on a thorough examination of these reports a pattern emerged according to which data was further coded.

### 6.2.2 Applied laddering procedure

As stated earlier, the laddering method is often referred to as an interviewing technique as well as a data reduction procedure. Previously, some notions were made concerning how the present study applied laddering as a technique to perform interviews. However, this study also applied laddering to the analysis of interview data. Thus, below are some notions regarding how the study applied laddering to further reduce data in order to elicit findings.

To begin with, when it comes to the core data reduction phase, it can be pointed out that the qualitative data was not analysed according to the laddering procedure per se. Traditionally laddering is used to find individual ladders. This means that the focus is on finding attribute – consequence – value chains for each subject. The data reduction phase in this study focused, in contrast, on detecting major themes. However, the fundamentals of the laddering procedure and means-end-chain, particularly concerning the outcome of the attribute – consequence chain, were present during the data reduction phase.

Four major themes were detected. Three of these themes involved a consumer point of view whereas one theme consists, among other things, of data that was linked to a management perspective. This study has emphasised the themes that involve a consumer point of view. The themes were based on findings, which are also referred to as *laddering codes*. Thus, when the themes were detected the data were analysed further, and the objective was then to apply the attribute – consequence chain on the laddering codes within the themes. As can be recalled, attribute stands for brand or package attributes or product features, whereas consequence indicates the consequences or benefits of the purchase, usage or consumption of the products.

The fundamental purpose of laddering is to lead the subject to associate the brand to herself, i.e. to find values attached to a brand. The focus in this study was foremost on the colour – product relation. This indicates that the aim of the so-called laddering procedure in this study was to detect what consequences, for example, colour had for the product. In other words, the result would be an attribute – consequence chain in relation to the product itself instead of to the subject herself.

Finally, in order to detect the values attached to a brand the laddering codes from the personal ladders are traditionally analysed by using content analysis (Reynolds and Gutman 1988). This means that a quantitative approach is taken. Instead of a quantitative approach, a qualitative approach was taken in the present study to analyse the findings, i.e. laddering codes. This was accomplished by applying a semiotic approach.

In conclusion, this study applied laddering to the findings within the themes that emerged from the data reduction phase in order to detect attributes and consequences that were linked to the product.

Reynolds and Gutman (1984) suggest that this ‘associational network’ could be used to understand the ‘images’, which are created in the minds of the consumers. According to Reynolds and Gutman (1984), these images are important in product differentiation. It is also suggested that this ‘network’ is useful in the analysis of brand and store decisions (Reynolds and Whitlark 1995). One of the reasons why this model is worth mentioning in the present study is that it resembles the continuous process of semiosis. Dingena (1994) supports this notion. Further, Mick (1986) announces that meanings can be re-interpreted. As a consequence, it can be postulated that interpretations create new triadic signs and meanings, which are open to new interpretations. As this study has maintained, the definition of the concept of image has many similarities with the concept of meaning is defined. Thus, it can be implied, although with some caution, that

means-end-chain and unlimited semiosis express the same phenomenon, although explained with different concepts.

Clearly the behaviour of the consumer is influenced by many factors and some of them are quite obvious, for example, psychological factors such as hunger (Mahatoo 1985). Without defining the wide concept of value<sup>34</sup>, it can be pointed out that the values of consumers are suggested as one major factor to govern the behaviour (Becker 1998; Gutman 1982). The means-end-chain is exemplified above as a possible model to find those values.

### 6.2.3 Theme of attention

One of the themes that appeared during the second phase of the coding process is linked to colours as a means to attract attention.

It is important to note that this study treats the attention-arising function of colours in general as a function linked to the eyes of the consumers, not to their minds. Since the discussion of this function in the present study is based on oral data it is important to point out that the study elicits no support to how this mental interpretation is linked to physiological reality. In other words, the emphasis of this function is not based on actual eye movements. However, the function of attention is noted, as it is one of the themes that evidently emerged from the interview data. In addition, it is important to point out that it is by no means claimed that the ranking of the packages was directly based on this function. Thus, the subjects did not motivate the ranking by stating that they prefer a package because a specific colour level attracts attention.

Following the reasoning of the laddering technique and the means-end-chain (see figure 26), the present study suggests that attention is a function that is *related* to the attribute level of the means-end-chain. As a result the figure below illustrates, first of all, that colours were perceived by the subjects as concrete and physical characteristics of the brand. Secondly, the figure attempts to show that this characteristic of brands appears to have a function on packages, which is to attract attention. In other words, colours attract attention on packages.

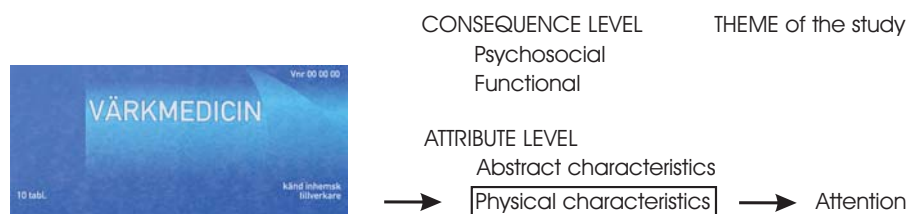


Figure 32. Colours as a means of attracting attention in the attribute - consequence chain

The theme of attention was at the beginning coded according to comments that were directly related to the function of attention. Gradually it appeared that a distinction

<sup>34</sup> See a discussion on the concept in Babin et al. (1994).

could be made between voluntary and involuntary attention. In accordance with the definition of voluntary attention in the theoretical framework of this study the theme of attention appeared, among other things, from comments on colours as a means of identification. In the framework it is stated that consumers may use colours, for example, for the search of a brand or a product class. Involuntary attention, on the other hand, is more linked to the physiological aspects of colours. As previous research points out deviating colours attract attention, and this function is foremost characterised as involuntary.

When it comes to voluntary attention, it can be maintained that one of the basic findings of the present study that is linked to this function of attention is that product classes are connected with colours. This means that it appeared from the interviews that there is an expectation as to the colour of the package of a specific brand. Further, it seems that this expectation originates from the colours of the other brands in the specific product class.

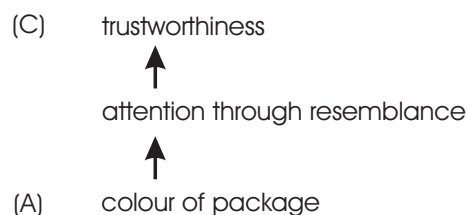
Apparently, it also seems that this expectation is linked to the appearance of strong and leading brands. It can be claimed that this finding is through identification related to the function of voluntary attention. This claim is based on comments stating that a package has a resemblance with a specific authentic brand, such as

*'Burana is green'*  
*'This is like Strepsils with the yellow colour'*  
*'Blue and yellow symbolises the Vicks-tablets'*<sup>35</sup>

A resemblance to an authentic brand was often stressed in product class 1, and particularly regarding the package with the shape of a portrait and colour of green. Thus, spontaneous linking to the brand name of Burana, which appears to be a strong brand and the market leader in this class as well, was made.

Colour was related to an authentic brand in product class 2 as well. In this product class the colours of yellow and blue were pointed out as having a resemblance with the brand Strepsils. This brand is also a market leader. An interesting finding was that these resemblances were usually commented on in a positive sense. When subjects were asked for further motivations, it appeared that typicality indicates trustworthiness, for example. The term typicality means in this context that subjects commented that some colours are typical in a certain product class, i.e. some colours are typically found on most of the packages.

A summary ladder:




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<sup>35</sup> A candy sold for a sore throat

However, also such comments were noted as

*‘Strepsils have yellow packages. However, it seems that they contain.. I do not know, colouring stuff, which means they are not effective’.*

A summary ladder:



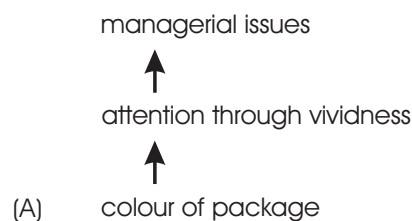
The involuntary attention was noted in comments especially concerning the colour levels of yellow and red, and particularly in product class 1. Thus, such comments appeared as

*‘Yellow is like yellow price tags’*  
*‘Red colour attracts attention’*

Subjects stated that they recognised these colours, and that they would probably recognise these colours in real life as well. In contrast to the previous comments on voluntary attention, these comments, related to involuntary attention, were seldom mentioned in a positive sense. Thus, further laddering resulted in comments that were mainly linked to managerial issues. Subjects claimed that the selection of colours was based on conscious attempts to push the brand ahead of others. For example, it was stated that

*‘It seems that the marketing people want people to buy the brand because it is yellow, and therefore appears on the shelf’*  
*‘Yellow is selected because they try to make people to buy the product as they (consumers) do not see anything else’.*

A summary ladder:



It can be concluded that voluntary attention led to further laddering, where a colour – product relation could be detected. This means that colours were stated to attract attention through resemblance, which further reinforces the trustworthiness and effectiveness of the product. Involuntary attention, on the other hand, led to further laddering where managerial issues were pointed out.

As said, it is not claimed that preferences and rankings were directly based on the function of colours to attract attention. However, it can be implied that this function has an implicit impact as it can be regarded as a precondition for having an impact on the subjects' ranking and preferences. This conclusion is based on the comments that the further laddering of the attention-getting device resulted in.

#### 6.2.4 Theme of aesthetic

Another theme that appeared during the coding process is based on comments where the aesthetic function of colours was stated. This means that the function is based on issues concerning the visual attractiveness and personal preferences for the specific colour levels defined in the study.

As said, the previous theme is not claimed to be an attribute but rather related to the attribute level. However, this theme can be placed at the first level of laddering, i.e. the attribute level. In other words, subjects motivated their preferences for certain packages by pointing out a certain colour level, i.e. colour as a physical characteristic, and further motivations for that were about colours as an abstract characteristic of the package. As a result, colours had an impact on ranking because a specific colour level was perceived as attractive.

In contrast to the previous theme, which was suggested not to have a direct impact on rankings, the aesthetic value of colours appeared to have an impact.

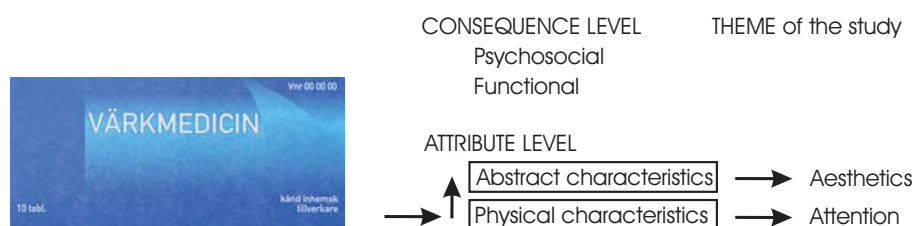


Figure 33. Aesthetic function of colours in the attribute - consequence chain

The theme of aesthetic emerged, first and foremost, when subjects stated that their preference for a specific package was based on the attractiveness, i.e. personal preference for a specific colour level. Usually the subjects commented on the visual appearance of colours without being able to give any further motivations. This means that consequences related to the means-end-chain of the attractiveness were not detected. Thus, the laddering stopped at such comments as

*'I like this colour'*  
*'Because of the colour'*

*'The red package looks good'*  
*'The red is.. I do not know. It does not attract me so to say'*  
*'The blue colour is somehow very nice'*  
*'Green. I do not know, if there is anything else that motivates this, but somehow the appearance is affecting'*

It can be claimed that not all of these comments contribute to the understanding of the colour – product relation as the attractiveness was not always directly commented on in relation to a context. However, the context was noted in comments, such as

*'Red is a too strong colour for medicine'.*

A summary ladder:



The theme of aesthetic also emerged from comments consisting of such verbs as 'fit'. This means a sort of congruence or fitness of colour. This aesthetic function of colours appeared, first of all, when subjects stated that a specific colour fits or does not fit another attribute and the levels of attributes defined for the study, such as taste. Evidently, this relation was particularly detected in product class 2. Such comments were noted as

*'The neutral taste fits the colour of red'*  
*'Green fits menthol'.*

Second, the aesthetic function was noted in comments linking the attribute of colour to the product class in question. Thus, the fitness of a specific colour level in a product class was commented on, such as

*'Blue fits better medicine against headache'*  
*'Yellow does not fit medicine against headache and painkillers'*  
*'The red first, it fits best medicine for pain'*

Further laddering resulted in consequences of the fitness, such as trustworthiness. Also such comments existed where the fitness of a colour level was linked to the subject herself without linking it to the product. This is exemplified by the following comment

*'The colour fits me because I am a woman'.*

A summary ladder:



An interesting finding concerns the notion of typicality and deviation of colours. As pointed out in the previous section of the theme of attention, and particularly when it comes to voluntary attention, *typicality of colours* appeared to be noted in a positive sense. Typicality means here that subjects commented that some colours are typical in a product class, i.e. colours that are found on the package of a strong brand or on most of the packages. Hence, typicality was further related to issues of trustworthiness of the brands.

When it comes to comments on colours from an aesthetic point of view it is, on the contrary, found that *colour deviation* is commented on in a positive sense. Thus, some subjects stressed their preference for colour deviation by stating that

*'Red is a radical colour'*

or by saying that

*'Red is a good colour in extreme cases'*

As it appeared, these comments had, according to the subjects, an impact on their ranking.

#### 6.2.5 Theme of communication

The third theme that emerged from the interview data is the function of colours as a means of communication. This means that colours were said to convey meaning, i.e. stand for something else than just a plain level of attribute, i.e. a colour pigment. Basically, the communicative function of colours appeared from statements such as

*'This colours means...'*

and

*'I associate this colour with...'*

The present study postulates that this theme appeared on the attribute level of the laddering as well as on the consequence level. To begin with, the subjects motivated the ranking with colours as a physical characteristic. Further laddering resulted in notions of colours as an abstract characteristic. For example, subjects commented on colours as signs that communicate something about the taste. Even further laddering resulted in comments on the consequences of colours. It can be claimed that the consequences that this study has detected are mainly functional consequences.

In accordance with the theme of aesthetic, this theme explains why colours had an impact on the ranking of the packages. Thus, the rankings were also based on the meanings that colours communicated about the products in the packages.



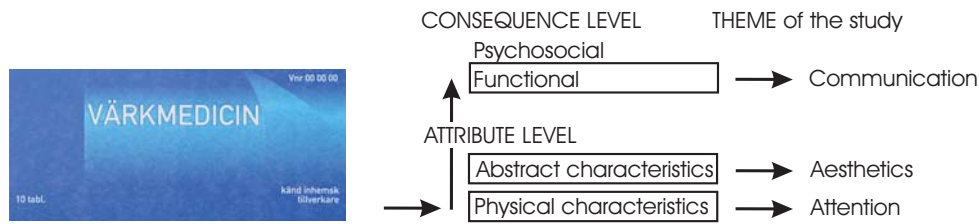


Figure 34. Colours as a means of communication in the attribute – consequence chain

The theme of communication emerged, first and foremost, when subjects stated that their preference for a specific package is based on the fact that the colour conveyed meaning about the taste. Thus, the attribute of taste was brought into mind. This function appeared from statements such as

*‘Blue means menthol’*

*‘I associate honey and lemon with yellow’*

*‘Honey and lemon are both yellow, and honey yellowish, so you have to be able to associate it with yellow and not with the blue’.*

Evidently, the comments of this type mainly concerned product class 2. An interesting notion is that the colours on packages concerning both the authentic and hypothetical brands may influence the expectations of taste, i.e. the subjects in pre-study, preliminary study, and the final study had expectation concerning the tastes of the products based on their package colours.

However, the interviews also resulted in comments that show that colours convey meanings about the ingredients of the products. In the present study this laddering code is represented by comments concerning such ingredients as lime, herbs, and colouring stuff. Thus, such comments appeared as

*‘I associate green with herbs’ and ‘It seems that they contain..., I do not know, colouring stuff’.*

Also the comments of this type occurred mainly in product class 2 although they appeared in product class 1 as well.

A summary ladder:



A summary ladder:



This study claims that colours convey meaning on a consequence level as well. As pointed out, the main purpose of this level is to explain what consequences the attributes have for the subject herself. However, as the focus in this study has been foremost on the colour – product relation, this study has aimed at detecting those consequences that were linked to the product itself, rather than to the subject. However, it can be claimed that as these consequences were expressed in the motivations of the rankings, the consequences were related to the subjects as well.

Several consequences of colours on packages were detected, and they were noted in both product classes. First, the consequences are examined that are directly related to the core product itself, namely the quality, trustworthiness, and effectiveness of the product. Second, the consequences are examined that are indirectly related to the product. It can be implied that these consequences are indirectly related to the product as they in fact are related to the specific illness that the products within the product class in question were intended to cure. Thus, the consequences of pain and cure are discussed.

First of all, it is found that colours convey meaning about the quality of the product. Here quality is simply referred to as whether the product is good or not, i.e. if it will cure the illness or not. Hence, such comments appeared as

*'I would not count on these as there is something peculiar about them'*  
*'It really affects (red)'*  
*'Red does not cure anything'*  
*'There must be something wrong with the product'.*

The quality of the product is closely related to the trustworthiness of the product. The laddering code of trustworthiness is based on comments such as

*'Blue seems somehow trustworthy'*  
*'In comparison to red and blue the green becomes a little unreliable'*  
*'Green conveys an unreliable impression'*

The comments above suggest that colours convey meaning about whether you can rely on and trust the product or not, i.e. if there is a fear of side effects, for example.

A third consequence that colours on packages appeared to have is linked to the effectiveness of the product. This consequence was expressed as

*'When I have a headache; I want to have medicines that cure it immediately. Red communicates immediate help'*  
*'Blue is perhaps more efficient'*  
*'Red reminds me of stronger medicines'*  
*'When you are really sick you go for the red colour'*  
*'The medicine is not strong or efficient (green)'*  
*'Red is an efficient colour'*  
*'Red helps faster than yellow'.*

The previous comments postulate that colours convey meaning about the efficiency of the product. Thus, in this study some colours were perceived as more effective than others. Apparently, consequences of this type are linked to the product class in question as comments of this type occurred in both product classes.

A summary ladder:



A summary ladder:



A summary ladder:



Second, it was found that colours convey meaning about the illness itself. This means that colours conveyed meanings regarding the pain and cure that were either related to the product in question or to another product. It was found that colours were linked to pain and cure by such comments as

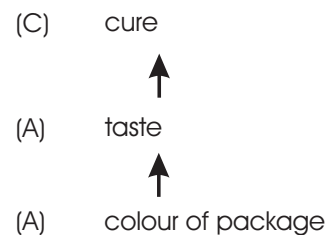
*'Red reminds me of some sort of pain'*  
*'If you are really sick you go for the red'*  
*'If you have a headache and want to have something that  
 relieves the pain and cures it then you do not want to have  
 something that reminds you of blood'*  
*'Pain in the head is probably more a red colour'*  
*'Red does not cure the illness'*  
*'If you have to put something in your throat, then red is too  
 burning. It does not feel good in your throat'.*

A summary ladder:



An interesting finding is that it appears that red conveyed meaning about pain in product class 1. Although, this colour – pain relation was perceived as a negative relation it was also expressed in a positive sense. In product class 2 colours that were associated with pain were not perceived positively. On the contrary, in product class 2 it could be detected that colours that conveyed meaning about the cure of the illness were expressed in a positive sense. Subjects expressed this relation by saying that blue is calming and fresh, for example. Thus, it can be concluded that colours may convey meanings about pain when it concerns painkillers, but not regarding medicine against sore throats. In product class 2 colours should rather convey meaning about the cure of the illness.

A summary ladder:



The study draws the conclusion that colours conveyed meaning about the product on different levels. First, colours communicated on an attribute level telling something about the core product itself, such as the taste and ingredients of the product. Second, colours were found to have consequences for the evaluation of the product, i.e. colours communicated the quality, trustworthiness and effectiveness of the product. It can be postulated that these consequences are linked to consequences of using the product as well. Third, colours have additional consequences for the evaluation of the product as colours conveyed meaning about the illness.

#### 6.2.6 Summarising the laddering findings

The data reduction phase as well as the laddering procedure were influenced by the fact that the qualitative part aimed, in accordance to the third research question, at examining the colour – product relations in order to find out if an analysis of these relations can increase the understanding of the impact of colour. This means that those motivations that are based on colours were emphasised. Thus, a basic standpoint in the processing of the data was that the rankings were motivated by colour as a physical characteristic. As pointed out, some subjects commented on colours by taking a managerial perspective, i.e. they gave, for example, some suggestions as to why specific colours were selected for packages. Further, some subjects commented on colours only implicitly, i.e. without directly commenting on the attribute of colour. These two types

of comments were not examined explicitly as they did not contribute to the understanding of how consumers perceive colours on packages.

The table below summarises the laddering codes discussed previously.

*Table 13. Summary of laddering codes related to colour – product relations.*

<b>Consequence level</b>	<b>Theme of the study</b>
Cure	Communication
Pain	Communication
Effectiveness	Communication
Trustworthiness	Communication
Quality	Communication
<b>Attribute level</b>	<b>Theme of the study</b>
Ingredients	Communication
Taste	Communication
Fitness	Aesthetic
Attractiveness	Aesthetic
<b>Precondition</b>	<b>Theme of the study</b>
Involuntary attention	Attention
Voluntary attention	Attention

To begin with, the table shows that the subjects commented on colours as a means to attract attention. It is important to point out that in this study the colours as a means of attracting attention was supported only by oral data. Thus, there is no evidence based on eye movements to support it. Nevertheless, the interview data indicated that the function to attract attention is twofold. Thus, colours attract, on the one hand, voluntary attention, which means that it is, for example, used by consumers when searching for a brand in a specific product class. On the other hand, colours were noted as a means of attracting involuntary attention, i.e. as an attribute of the brand that attracts attention regardless of the context. It can be found that the colour levels of yellow and red appeared to be commented on particularly when it comes to involuntary attention. It is important to point out that this study does not claim that colours as a means to attract attention had a direct impact on the ranking. Thus, the implication of this finding is rather that the function to attract attention is to be regarded as having an indirect impact. More closely it is suggested that attention is a precondition for colours to have a further impact on the preferences and the rankings.

Laddering codes at the attribute level are found to have an aesthetic function and a communicative function. The study suggests that colours had an impact on the rankings and the preferences because colours have an aesthetic value. This function was interpreted to convey meaning of colour as an abstract characteristic. This function stands for laddering codes where the colour – product relation was explained by attractiveness and fitness. The attractiveness of colours was, on the one hand, regarded as a personal preference without linking it to a context, and, on the other hand, as a preference in relation to a context, i.e. product class. Fitness was in general noted in relation to a product class, for example, that a specific colour fits painkillers.

Colours were also stated as being important since they convey meaning about the taste and the ingredients of the product. These findings of the colour – product relations were implied to have a communicative function. In this study these two meanings are referred to as abstract characteristics according to the means-end-chain. These laddering codes emerged, on the one hand, when the subjects linked colours with the attribute of taste, which was written on the packages in product class 2 (medicine against sore throats). On the other hand, the laddering codes also emerged although the subjects made no direct link between the colour and the product class. In these cases the subjects commented on colours from a more general point of view without noting the context.

The present study implies that laddering codes at the consequence level have a communicative function. It can be claimed that these consequences are mainly related to functional consequences. Laddering at this level means that colours were stated to have consequences for the evaluation of the product by conveying such product meanings as quality, trustworthiness and effectiveness. In addition, it was found that colours have such consequences for the evaluation of the product that it conveys meaning about the illness itself, i.e. the pain and the cure of the illness.

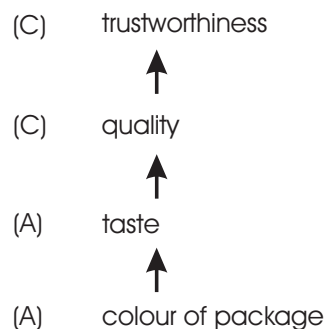
It is important to note that the relations between the laddering codes vary. As the previous examples of the ladders show they can be simple attribute – attribute ladders, or more advanced such as attribute – attribute – consequence – consequence ladders.

Examples of such ladders are given below.

A summary ladder:



A summary ladder:



As it appears, the laddering findings support the conclusions which were made in the quantitative part of the study, i.e. that colours have an impact. The discussion also shows that colours conveyed different meanings and that the meanings were related to the context, i.e. that colour – product relations exist.

The data reduction resulted in three themes suggesting why colours appear to have an impact on the rankings, although the theme of attention is regarded as having an indirect impact. In other words, when the subjects motivated the rankings with colours they

commented on colours as something that attracts their attention, as something that is appealing, i.e. that has an aesthetic value and as non-verbal signs that communicates something. The study found that these three themes were related to the product.

Thus, a conclusion is that it appears that colours relate to the product on an attribute level of the means-end-chain, where it mainly is regarded as a physical characteristic but also as an abstract one. This study suggests that, on this level, colours have an aesthetic value and that colours communicate. Further colours appear to be related to the product on a consequence level as well. This means that colours convey meanings about the benefits of the purchase, usage or consumption that are related to the product. This study implies that these consequences are mainly functional. As it appears the present study suggests that colours communicate on this level.

### 6.3 APPLYING A SEMIOTIC APPROACH

In order to further penetrate into the colour – product relation a semiotic approach was taken. The data reduction phase resulted in three themes that were connected with the colour – product relation. Semiotics is about communication. Thus, applying a semiotic approach means that the laddering codes referring to colours as a means of communication are penetrated further. Therefore, the laddering codes referring to the themes of attention and aesthetics are not discussed here.

#### 6.3.1 A semantic perspective of colour

Basically this section applies a semantic perspective suggested by Morris (1938; 1946) in order to gain a deeper understanding of the colour – product relation. This means that the focus is on the sign – object relation. The following laddering codes are analysed:

- cure
- pain
- effectiveness
- trustworthiness
- quality
- ingredients
- taste

These laddering codes are analysed by relating the sign – object relation to different types of signs suggested by Peirce. Before the discussion moves on to examining the laddering codes, a discussion is conducted concerning how colours as non-verbal signs can be examined according to the different types of signs.

### 6.3.2 Iconic colour signs

In accordance with the definition of icons, colours can be regarded as iconic signs when they have some resemblance with their object. As discussed previously resemblance is gained by imitating the object or when the sign and the object share some characteristics, for example.

An iconic colour sign can be exemplified by the colour of red, which in general is stated to indicate heat and fire. It can be claimed that this interpretation is based on an iconic sign – object relation, as, for example, heat on skin appears as red. Consequently, a resemblance exists between the colour of red and the object of skin. In the theoretical framework of this study it was maintained that the colours of red, orange, and yellow are in general regarded as warm colours. An additional interpretation of these colours suggests that the red, orange, yellow – warmth relation also convey iconic meaning, as the colours of orange and particularly yellow are stated to indicate sun. Thus, as the sun in fact is warm, the colours function as iconic signs conveying iconic meaning of warmth.

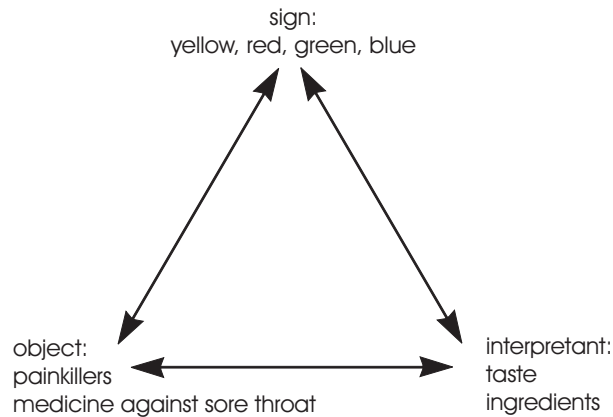
In contrast to warm colours are the colours of green, violet and blue in the colour wheel. These three colours are generally claimed to be cold colours. It can be claimed that also this green, violet, blue - cold relation is based on an iconic sign – object relation. This can be explained by the fact that these colours are in general connected with objects such as water and sky, which evidently can be regarded as cold objects.

When the communicative function of colours are analysed in relation to an object it can be claimed that a colour functions as an iconic sign on packages when it reflects the product itself, its ingredients or components. In other words, colours function as iconic signs when the core product is expressed on the package through colours. Dingena (1994) makes this notion in the context of advertisements as well.

The study postulates that the laddering codes of taste and ingredients can be explained as resulting from the fact that the sign stands in an iconic relation to its object. This means that the attribute of colour can be regarded as a sign that conveys meaning about the taste and ingredients of the product through similarity and imitation. This relation can be exemplified by the colour of yellow that was stressed by the subjects in the present study to convey meaning about the taste of orange, lemon, and honey, for example. In addition, the colour of green was stated to stand for the taste of mint. The iconic relation through similarity and imitation is evidently explained by the fact that the tastes of orange, lemon, and honey origin from objects that are yellow or yellowish in themselves. Similarly, mint as an herb is green in itself. When it comes to the laddering code of ingredients it was stated by subjects that the colour of green conveys meaning about such ingredients as herbs, for example. Obviously, herbs in general are green as well.



The result of the iconic sign – object relation is demonstrated in the figure below.



*Figure 35. Colour as an iconic sign on packages*

The figure demonstrates, first of all, that the colour stands for an object, i.e. a product. Second, the figure shows that the sign – object relation, i.e. the colour – product relation conveys meaning, an interpretant. In other words, the figure illustrates that the specific colour levels communicate something about the products, i.e. the colours communicate the taste of the core product and its ingredients.

To conclude, the figure indicates that colours communicate. However, it is most important to emphasise that the attribute of colour communicates the taste and ingredients because it is related to its object. Second, it is important to emphasise that colours communicate the taste and ingredients of the product, because the particular colour and the product stand in an iconic relation to each other.

### 6.3.3 Indexical colour signs

In general it is stated that an index is a sign that has a direct relation to its object. In fact, the relation does not have to be absolutely direct, but it has to be logical. This means that it has been suggested that the relation may also be based on an association or even a casual connection. This indicates that it can be claimed that many of the previous colour studies focus on colours where the colour in fact stands in an indexical relation to its object. Evidently, this concerns in particular those previous studies that focus on colour associations.

Above, the colour of red on skin was suggested to be an iconic sign. However, it may exemplify an indexical sign – object relation as well. In an indexical relation the colour of red should be regarded as an index of something such as embarrassment or fever. Below are some other examples that show how colours convey meanings about the object in question when they stand in an indexical relation to that object. For example, the relation of the colour of blue and the object of skin would probably be associated with coldness. On the other hand, if the skin appears as black, the sign – object relation may convey the meaning of gangrene. In nature the colour of brown may be an indexical sign of dryness. Further, it can be maintained that the relation of black and sky may be an index of forthcoming rain and storm, whereas redness and evening sun is an

index of the weather next day. It is also stated that black smoke is an index of fire (Fiske 1990). Further, it can be postulated that coloured smoke is an index of celebration.

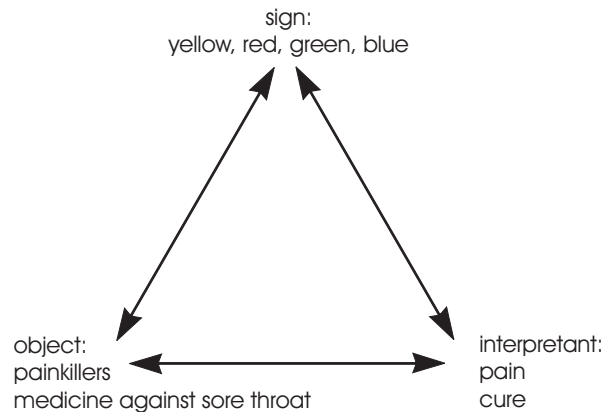
In accordance with the previous examples of the colour of yellow, the colour may be exemplified on packages as an indexical sign. As can be recalled, yellow stands for sun as an iconic sign. Following the fact that the sun also means energy, it can be maintained that an associative connection exists between the colour of yellow and energy. It can be claimed that this indexical relation is utilised on soft drinks, for example. As a result, the outcome of this particular sign – object relation is that the colour of yellow conveys meaning of energy. A further assumption is that it is expected that consumers make further interpretations by linking the sign – object relation to the product itself.

Based on the previous discussion it can be claimed that the laddering codes of cure and pain indicate that the sign and the object stand in an indexical relation to each other. This means that the attribute of colour is to be regarded as a sign that conveys meaning about the product through association. A basic assumption is though that a logical and obvious link is found between the sign and the object.

In this study it was found that the colour of red in particular was associated with pain in product class 1 and that the colour of blue was connected with cure in product class 2. An explanation to why red conveyed meaning of pain is that red can be claimed to have an iconic relation to heat and fire. In a situation where the skin feels hot and it appears red, it most likely causes pain as well. Thus, it can in fact be postulated that red is an index of *experiencing* pain. An interesting notion is that in this study this relation was made in a negative as well as in a positive sense. Thus, the colour of red was allowed to convey meaning about the pain in a particular context.

The interpretation of blue as a colour for cure can be explained by the iconic relation that the particular colour has to objects such as water and sky. Evidently, it is fair to claim that these objects are not only cold, but fresh and calming as well. In fact the subjects in the present study stated that the particular colour was associated with these words. Thus, the present study postulates that blue as an indexical sign, which means that it stands for cure as the colour indicates that it has a *fresh and calming impact* on the body.

The outcome of the indexical sign – object relation is demonstrated in the figure below.



*Figure 36. Colour as a indexical sign on packages*

The figure demonstrates, in accordance with the previous figure that the attribute of colour stands for an object, i.e. a product, and that the sign – object relation creates meaning as well. The figure suggests that in an indexical relation colours communicate indirectly the illness that the products within the specific product classes are intended to cure. Thus, colours communicate cure and pain because colours are sign that are closely or through association related to their object.

#### 6.3.4 Symbolic colour signs

As pointed out colours are most often referred to as symbols, and as pointed out previously it is also stated that they are the most obvious type of signs.

The symbolic reference to colours can be exemplified by stating that colours are symbolically linked to moods. For example, it is said that a person is blue eyed (meaning that the person is naive) and becomes green with envy. A novice is stated to be green as well. On the other hand, it is stated that a person becomes white with horror and red with anger (Lewis 1994). In fact, it can be claimed that the last example is based on an indexical sign – object relation, because a consequence of anger is that the blood pressure increases, and evidently blood is red. Obviously the face of the person may become red as well, and thus an iconic relation may be detected. Further, it is found that black is a symbol for mourning in some cultures, whereas white conveys the same meaning in other cultures. On the one hand, green is linked to environmental issues in a positive sense in some cultures but, on the other hand, it is a colour of poison in others.

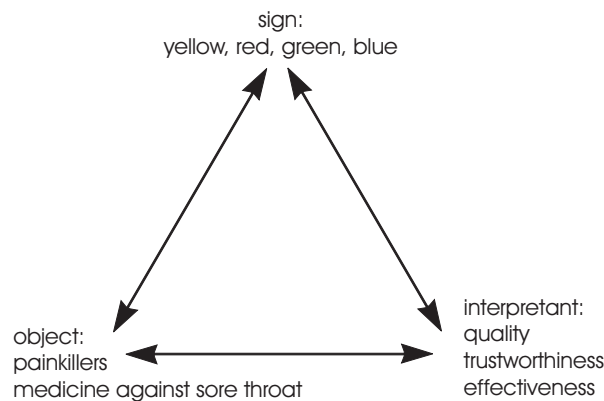
As with the previous types of signs, the meaning a colour conveys is dependent on the object that the sign relates to, i.e. the sign – object relation. However, the impact of the context of the sign – object relation increases when it concerns symbolic signs as it has an impact on the interpretation of the relation. Thus, the same sign – object relation may result in different meanings depending on the context, such as culture.

As said, colours are in general referred to as symbolic signs, or symbols (e.g. Woods 1981). However, based on previous discussion it is important to note that a colour is a

symbol when the link between the sign and object is arbitrary. In other words, as icons are based on direct resemblance between the sign and the object, indexical signs require logical connections between them; symbolic signs indicate that no such connections exist between the sign and the object. This means that the symbolism of colours is understood only through a silent agreement. This may explain why the symbolism of colours is not universal but is dependent on the context of the sign – object relation. As a result, the meanings may change when crossing national borders and in different cultures.

In this study it is claimed that the laddering codes of quality, trustworthiness, and effectiveness convey symbolic meaning. For example, some colours were perceived as more trustworthy and effective than others. These interpretations indicate that there is an arbitrary relation between the colour and the product. The sign – object relation is claimed to be arbitrary as the relation is, on the one hand, not direct and, on the other hand, the associative link between the sign and the object is too remote. Consequently, it can be implied that a resemblance to the indexical relation exists as these laddering codes originate from an indexical sign – object relation. As can be recalled, it was previously maintained that the colour of blue means cure. However, the ladder examples show that the meaning of cure, for example, was further stated to indicate effectiveness. This means that the subjects stated a further associative link. However, the present study postulates that the final link between the sign – object relation and the interpretation of that relation is rather remote. Hence, it would seem artificial to state that the laddering codes above would indicate for example an indexical sign – object relation. Thus, a symbolic relation is postulated.

The outcome of the symbolic sign – object relation is demonstrated in the figure below.



*Figure 37. Colour as a symbolic sign on packages*

The figure above demonstrates, as do the previous ones, that the attribute of colour stands for an object, and that this relation creates meaning as well. Also, this is something that supports the assumption that colours communicate. In addition to the fact that colours convey meaning as icons and indexes the study claims that colours convey symbolic meaning as well.

An important notion when it concerns the symbolic meaning of colours is that the outcome of the sign – object relation is dependent on the context. Thus, the same

relation may be interpreted differently depending on, for example, the product class or the culture.

### 6.3.5 Modification of ‘Colour meaning on two levels’

The semiotic approach in this study is summarised in a conceptual figure (figure 20). As said, it was suggested that the figure summarises the semiotic approach in this study and also how colours as a means of communication can be analysed and understood.

In this section the figure is applied to the laddering codes that are related to the theme of communication. Based on the previous discussions and findings some modifications are made and a revised figure is discussed.

Based on the findings of this study, the following figure is illustrated.

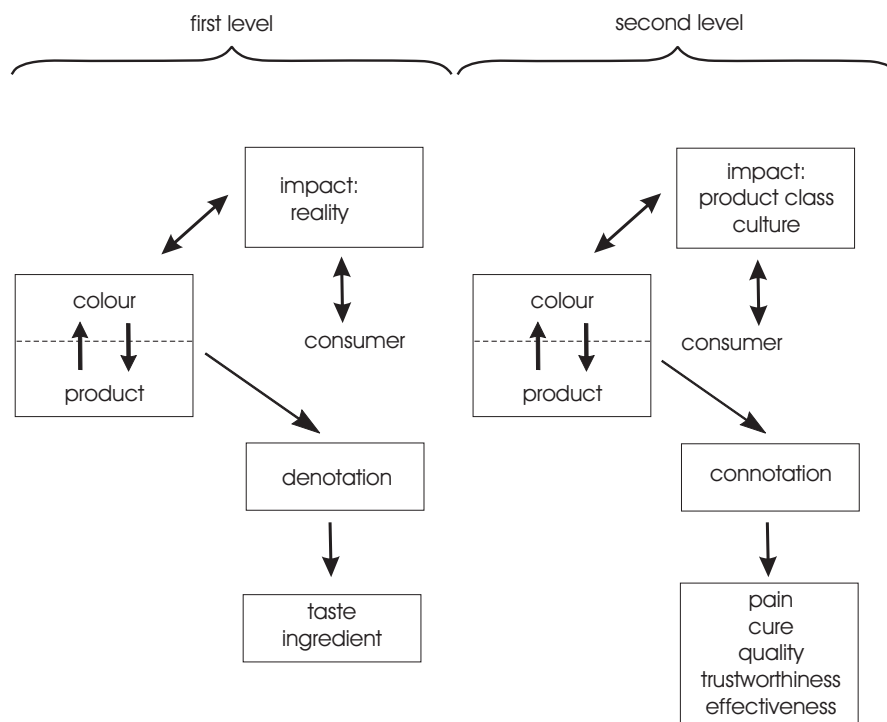


Figure 38. Colour meaning on two levels applied to the findings

To begin with, the figure suggests that colour works on two levels. The first level is the obvious and common sense level, whereas the second level involves deeper interpretations.

The first level postulates that the colour – product relation conveys denotative meaning. Based on the previous discussions and relating the laddering codes to the figure, it can be postulated that the laddering codes of taste and ingredient belong to this level. As suggested these laddering codes are the outcomes when the sign and the object relate to each other in an iconic way. This means that the package attribute of colour should be regarded as a sign that conveys meaning about the taste and ingredients of the product

through similarity and imitation. In other words, based on the interview data it was suggested that such meanings appear when there is common sense and an obvious link between the colour and the product. This can be exemplified by the relation between the colour of yellow and the medicine against sore throats, which convey meanings of such tastes as lemon and honey. Further, the relation of the colour of green and the medicine against sore throats convey meanings of the ingredients of which the product is made of, such as herbs. As said, comments concerning this type of signs occurred mainly in product class 2, although they appeared in product class 1 as well.

Further, the figure suggests that the colour – product relation conveys connotative meaning at the second level. Relating to the previous discussions the study implies that the laddering codes of pain, cure, quality, trustworthiness and effectiveness convey connotative meaning. This means that the signs of indexes and symbols convey meanings on this level. These two types of signs indicate that the relation between the sign and the object is not absolutely direct, although indexes require that the relation is logic. The figure also suggests that the colour – product relation is closely related to the context, such as the product class. The impact of the context can be explained by the fact that the study found that the colour of red conveys the meaning of pain, and that this relation was commented on in a positive sense in product class 1. The study also found that red conveys the meanings of pain and heat in product class 2. However, in that product class the meaning was primarily commented on in a negative sense. Further, the study found that the colour of blue conveyed the meaning of quality in product class 1, whereas it was closely linked to cure in product class 2. The impact of the context is also explained by the result of the study that showed that the colour of yellow was regarded as a peculiar and deviating colour in product class 1, as the colour of blue was linked to taste in product class 2.

Based on the previous discussion a modification of the original figure (figure 20) is made.

To begin with, the modifications concern the meanings that are conveyed by the sign – object relation. The original figure suggests that iconic signs convey denotative as well as connotative meaning. Iconic signs that convey denotative meaning postulate that the sign – object relation is based on similarity and imitation. Iconic signs that convey connotative meaning suggest, on the other hand, that the relation can also be based on abstract resemblance. Symbols convey connotative meaning only, as this sign is mainly based on agreement and convention. Thus, the modification above concerns all the indexical signs.

The original figure suggests that indexical signs convey denotative as well as connotative meaning. Indexical signs are stated to be physically connected with their objects and it is claimed that the person interpreting the sign – object relation is not involved in the relation. Although this definition implies a denotative meaning, indexical signs are also implied to convey meaning through association and causal relation, and this implies a connotative meaning. Despite these definitions, this study argues that indexical signs primarily convey connotative meaning. Evidently, this concerns indexical colour signs. It can be claimed that indexical colour signs convey denotative meaning by exemplifying the relation of the colour sign of white and the

object of detergent. Studies have found that the colour of white is regarded as a clinical and a sterile colour (Jacobs et al. 1991). In other words, it is also implied that white is a clean colour. This means that if something is white, it is clean too. When relating this to the sign – object relation on the first level of meaning, it means that the colour – product relation conveys the meaning of cleanliness. Therefore, it can be argued that the relation between the sign and the object is direct, and the outcome of the interpretation is indexes of using the product: cleanliness. Although it can be implied that this sign – object relation is based on directness as in an iconic relation, the study nevertheless claims that the relation conveys meaning through association and causal relation. This means that further interpretation is required according to the second level of meaning. Further, the interpretation of the relation is closely related to the context.

The modifications also concern the meaning at the second level, which is influenced by the context. In the modified version the context involves not only culture as in the original figure, but it also involves such issues as the store in question, the product class and the product and so on. Thus, context should be regarded as a general concept that has an impact on the sign – object relation.

The figure is exemplified below.

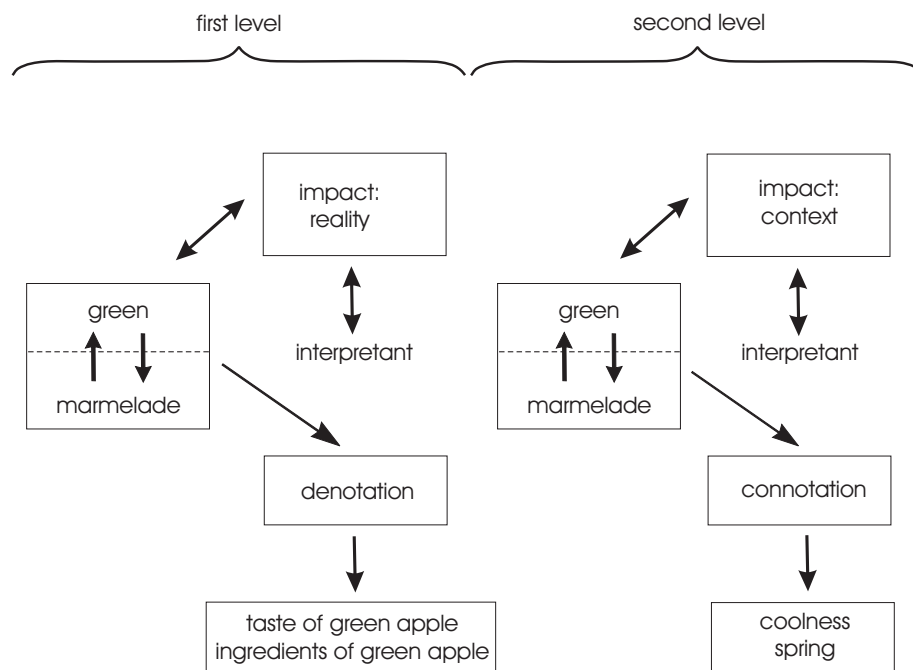


Figure 39. Colour meaning with two levels exemplified

For example, the sign is a green apple on a package of marmalade and the object is marmalade. The figure suggests that on the first level of meaning the colour - product relation conveys meaning about the taste of the product as well as about its ingredients. Thus, the non-verbal sign of the green apple tells the consumer that the package consists of marmalade made on green apple, and that the product has the taste of green apple; perhaps even sour apple. Evidently, this relation is based on an iconic relation, i.e. the relation indicates similarity and resemblance between the sign and the object. In this case the iconic sign is easily understood, which means that verbal signs are not required.

In this case the apple supports the meanings conveyed by the colour – object relation. In other words, an additive effect of the signs of apple and colour is gained.

The relation between the sign of the green apple and the object of marmalade also conveys meaning on the second level. This can, for example, be explained by regarding the colour of green and the apple as two separate signs. Thus, they both convey additional meaning, i.e. connotative meaning that has an impact on what meaning the sign of green apple conveys in relation to the object. On the one hand, studies show that the colour of green conveys such connotative meaning as coolness and spring (Jacobs et al. 1991). This indicates that the colour not only represents the concrete taste of apple, but it can also convey the feeling of coolness and spring, for example. It can be claimed that when the relation conveys such meanings as coolness and spring, an indexical relation between the sign and the object can be detected. On the other hand, because the colour is related to the apple sign, the meanings of coolness and spring can also result in further meanings. Apparently, this is supported by the notion of continuous semiosis suggested by Peirce. As a result, by relating the meaning of spring to the apple sign such additional meanings can be created as longing for a summer cottage etc. In fact, the continuous processing of semiosis resembles the means-end-chain, which, as said, is also referred to as an associational network (Reynolds and Gutman 1984). Thus, one association leads to another, which in fact is in line with the previous notion that thinking can only be interrupted, but it can never really be ended.

To conclude, the figure above aims at illustrating how a further penetration into the colour – product relation by applying a semiotic approach can increase the understanding of colour as a means of communication on the package.

### 6.3.6 Reflections concerning the semiotic approach

Some comments must be made on the semiotic approach in this study and the figure above (figure 38).

The first comment concerns the concept of meaning, which is emphasised by the figure. The figure indicates that meaning can only be understood when the sign, the object, and the interpretant are present. This is true not only when the aim is to understand meanings produced by marketing activities, but also when possible reactions by consumers are predicted.

Second, as can be recalled, the interpretant does not actually refer to the person interpreting the sign. However, in the context of marketing it can be implied that the interpretant involves the person who decodes the signs and produces or creates the meanings.

Third, the concept of the sign is pointed out. As said, signs can be distinguished on the level of meaning that they convey as well as according to their type. This means that signs convey denotative as well as connotative meanings. Three types of signs exist, i.e. iconic, indexical, and symbolic signs. In addition, it is essential to point out that a sign can have many functions. On the one hand, the colour of yellow may function as an



iconic sign of the taste of lemon. On the other hand, it can function as an indexical sign conveying the images of cheerfulness and happiness when one uses the product. However, it can also be implied that these meanings are outcomes of interpreting the colour of yellow as a symbolic sign. As a result, the interpretation of a colour sign may vary. It can be implied that this is also an essential issue in planning marketing activities.

Fourth, the importance of the context must be pointed out. As noted, the context is essential in studying communication. The importance of the context is emphasised in colour studies too (Taft 1997; Saito 1983). In figure 38, the meanings are influenced by such contexts as product class and culture. This means that although this study suggests that blue connotes, for example, with the quality of painkillers, it may not do so in another context. The impact of the culture on colours is supported by Jacobs et al. (1991). They stress that colour meanings may vary across cultures. Thus, green may connote with coolness and spring in one culture, whereas it is found to connote with poison and sickness in another culture.

The fifth comment is about the impact of human aspects on the meaning, and this comment is closely related to the previous one. The impact of human aspects is emphasised by Lee and Barnes (1990). Although they do not explicitly study meaning they contend that the impact of colours vary according to such aspects of the target group as demographic characteristics, for example. This supports the claim in the current study that past studies on colours that are conducted without a specified context cannot directly be applied to specific marketing activities.

## 7 DISCUSSIONS

The final chapter summarises the preceding study. The chapter aims primarily to build a bridge between the theoretical framework and the empirical findings of the study. This means that the chapter aims at shedding some light on the impact of colours on packages when it concerns decision-making in low-involvement purchasing.

To begin with, the attributes defined in the empirical study are discussed. In other words, the impact of colours, shapes, fonts, producers, and tastes are examined. After that the different colours of the study are examined, which means that the impact of blue, green, yellow, and red in relation to the context are discussed. The chapter also reviews the various functions of colours detected in the study. In other words, the issues of attention, aesthetics, and communication are discussed.

Then a section deals with the implications of the study. This means that a suggestion is given to how the understanding of the communication process can be enhanced, and effective communication can be achieved. Finally, the contributions of the study are discussed and the study is evaluated.

### 7.1 THE IMPACT OF COLOURS ON BRAND PREFERENCES

Colours appear to be an issue that everybody has an opinion on. Colours are also an issue that affects everybody. For example, colours affect us through such issues as clothes, food, weather, races, interior, architecture, animals, and so on. Most of us make several colour choices during an ordinary day. One of the most obvious colour choices made is linked to the selection of clothes. The selection may, for example, be based on fashion or it may be based on our mood. The present study has pointed out that there is a large body of colour research concerning colours and emotions. However, it has been claimed that the empirical evidence concerning the affective value of colours is in fact weak (Valdez and Mehrabian 1994). Nevertheless, it can be postulated that it is a commonly accepted knowledge that colours are related to our moods. Thus, feeling blue may cause us to select dark clothes, or we may want to wear clothes in colours that cheer us up. Further, we humans change our colours according to seasons just as many animals do. Thus, late autumn means sleepiness and darkness, and at that time we tend to wear clothes coloured in black, brown, and grey. In other words, we intend to melt in to the environment by using clothes in dark colours. Spring means sun, energy, and birth. At that time nature starts to blossom in light green and yellow. Similarly as we are always as excited about seeing the first butterflies, and their bright colours, we humans tend to wrap ourselves in brighter colours in spring.

Colours constitute an essential issue also in a store setting where colours affect us in several ways as we also there make several colour choices. In Finland we have learned that light blue means fatless milk. We know that orange means fat cream. We select between yellow, orange, green, and red peppers. We may also select between yellow and red tomatoes, or brown and blue potatoes. We know the colours of fresh fish and meat, and we search for our favourite chocolate bar by its colours. We may select table

napkins because we like the colours. We also know that products with yellow price tabs mean reduced prices. Without any doubts colours constitute an essential aspect of our daily life.

However, the impact of colours is not only so-called general knowledge, but it is acknowledged by past research as well. As the number of published studies on colours with marketing implications is scarce, it seems fair to claim that the impact of colours on consumer behaviour is a neglected issue within marketing research. The main reason for studying colours is to understand the impact of colours (Ball 1964). Thus, colours should be studied within the field of marketing in order to understand the impact of colours on consumers when it comes to such issues as branding, advertising, packages, displays windows, interiors, and the clothes of the employees, for instance.

The study presented in this report was about the impact of *colours on packages* at the point of purchase. The emphasis was on the impact of colours on packages on the decision-making in such purchases that are characterised as low-involvement.

The basis for the current study was a scenario in which the consumer faces an unpredictable problem which needs immediate action. As said, low-involvement purchasing refers to cases where the consumer puts limited effort into the decision-making. It refers among other things to choices where the consumer lacks time to search for information about the various brands as she is in hurry, for example. This means that the consumer puts limited effort into evaluating and comparing the competing brands. In other words, choices are made under *time pressure* and at the *point of purchase*. The consumer does make a decision, although the process to make a choice lasts a short time. The decision-making is unplanned, and in this study it was also assumed that the consumer *lacks brand preferences*. This means that, although it is fair to assume that the consumer may know the product class she is looking for, she may not have knowledge about the various brands within the specific product class. Thus, no particular brand is preferred. It can also be imagined that the preferred brand is out of stock, or it can be postulated that the consumer is a variety seeker. Furthermore, the scenario indicates that the choice involves product classes where the core products behind the brands are more or less identical. In other words, the core products behind the *brands* are indistinguishable from each other.

The aim of the current study was to explore the communicative role of colours on packages on the decision-making in such purchasing situations as explained above. Consequently an underlying assumption in this study was that consumers may use colours on packages intentionally as discussed in the in-store example above. However, an assumption was also that consumers may use colours on packages unintentionally when they make brand choices.

In the present study the consumer met an unpredictable problem, which was a minor illness, such as headache and sore throat. The scenario at the beginning of this study implies that the consumer, called Sandra, takes action to cure the illnesses. Thus, this study has investigated two product classes within the healthcare industry, i.e. painkillers and medicine against sore throats.

Three research questions were posed, and they are examined below. The two first research questions were about investigating the impact of colours, and a quantitative technique was used to investigate that. The third research question was about detecting how an analysis could be carried out in order to understand the impact, and that question was answered by using a qualitative technique.

#### 7.1.1 The impact of signs in low-involvement purchasing

The present study supports the first research questions, which means that the study found that colours have an impact. This conclusion lends support to past research (e.g. Gordon et al. 1994), according to which colours matter. By focusing on a particular purchase situation, the current study postulates more closely that colours have an impact on the brand preferences of consumers. In accordance with the setting discussed above, the present study suggests that colours have an impact on the decision-making of consumers in low-involvement purchasing. As said, this study focused on product classes in which the core products behind the brands are more or less identical. As a consequence, the current study implies that colours have an impact on such brand choices that are made at the time and point of purchase, and where the product classes are composed of brands with core products that are indistinguishable from each other.

In this study the product class of painkillers involved four attributes, and the other product class, i.e. medicine against sore throats, involved five attributes. The conclusion drawn is based on the fact that of the attributes defined, colour appeared to be the second most preferred attribute in both product classes.

In order to understand the impact of colours, interviews were conducted at the same time as the subjects ranked the hypothetical packages in order of preference. So far only colours have been examined. Below not only colours are discussed, but the other attributes of the study as well. It is important to note that the interviews focused on the attribute of colours, which means that issues related to colours were explicitly asked about. As a result, the discussions below concerning the other attributes of the study are based on comments that the subjects stated more or less spontaneously during the interviews.

#### *Design elements of packages: colour, shape, and font*

To begin with, the present study shows that colour indeed is an important design element. In fact, it can be postulated that this study lends support to claims in previous colour studies according to which colour is the most important design element (Danger 1987b). In this study colour appeared to have a greater impact than the other design elements of the study, i.e. the attributes of shape and font. This conclusion was made in both product classes.

Past research on colours has found relations between colours and shapes (Itten 1970). For example, it is found that red and square, yellow and triangle, as well as blue and circle are closely related to each other. The present study does not lend any support for that. Thus, the subjects of this study did not consider that a specific shape is related to a

specific colour in any way or that a specific shape fits a specific colour better than another. This concerns the relation between the attributes of font and colour as well.

In this study the shapes of the packages were basically linked to the functional aspect of the packages, although some interesting findings concerning the communicative function of shape was made as well. In this study the subjects preferred the shapes of landscape and portrait, as these shapes were perceived as pocket sizes. An interesting finding is that these two shapes were perceived as smaller than the square one, although the fact is that the volumes of the three shapes are identical. In addition, some subjects commented spontaneously on how they dislike square packages in this context. These subjects related the particular shape to other contexts such as candies, for example, and an additional interesting finding was that these comments were made in a negative sense.

The attribute of font, on the other hand, was commented on in the continuum of like – dislike. This means that the subjects commented spontaneously on the fonts by saying that they liked a particular font or they did not like the font. Thus, the interviews did not result in any further comments that would expose some underlying meanings behind the fonts. In accordance with the definition given to the aesthetics of colours, the present study concludes that the attribute of font appeared to have an aesthetic function only.

Colours, on the other hand, appeared to be commented on as a means of attention, from an aesthetic point of view, and as signs that convey meanings. Thus, a conclusion is that colours appeared to have an essential function as a means of communication, shapes seemed to communicate only slightly, whereas the attribute of font did not communicate at all in this study.

### Producer

The producer was perceived as the most important attribute when it comes to the product class of painkillers. In medicine against sore throats the attribute of the producer gained the third highest scores. The scores for the relative importance of the various attributes concerning the two product classes cannot directly be compared to each other, because product class 1 lacks the attribute of taste. However, some comparison can be done by examining how the subjects commented on the producer during the interviews.

Basically, it appeared from the interviews that the two product classes in themselves were perceived differently. Concerning the painkillers the subjects maintained that painkillers are ‘real’ pharmaceuticals. It was stated that painkillers are more serious pharmaceuticals, whereas the medicine against sore throats was regarded as a less serious pharmaceutical. It appeared that medicine against sore throats was, in fact, not perceived as a so-called real pharmaceutical and not as candies either. In other words, it was perceived as a product class that can be located between these two, but in some respect it was associated with candies. An interesting finding was that despite the association with candies it was obvious that the signs of the packages, such as shape, should not convey such meanings. Thus, the study concludes that the particular product class was perceived as a product class that is closely associated with candies, although it should not bear such signs.

The perception of painkillers being serious pharmaceuticals is partly supported by the fact that it appeared that the subjects sought for signs conveying meaning of the trustworthiness of the product. Basically, subjects used the attributes of producer and colour as such signs, and particularly the attribute levels of known producer and the colour of blue. Thus, it can be implied that knowledge of the producer indicates trustworthiness, which may be claimed to be an important aspect when it comes to such pharmaceuticals as painkillers. The subjects suggested also that the colour of blue conveyed meanings of trustworthiness. However, the colour was also associated with the quality of the brand. As it appears, these two levels of attributes also gained the highest estimates of part-worths in product class 1. As said, the producer was the most important attribute in product class 1, i.e. painkillers, and a conclusion concerning this product class is that those packages were preferred where the attributes of *the producer and colour conveyed symbolic and connotative meaning* about the product. Further, those packages were preferred and commented on in a positive sense, where the producer and the colour communicated the same meanings. In other words, the two signs supported each other, and an implication is that an additive effect may be gained by using such signs.

In the product class of medicine against sore throats, the subjects rather preferred local producers than known producers. Thus, associated with candies, the subjects valued more that the product was produced locally than that the producer was known. In product class 1 the producer was related to the product, whereas it in product class 2 was rather an issue of taking a standpoint, such as supporting domestic production. In general it appeared from the interviews that the producer was not perceived as an important attribute in product class 2. In fact, it appeared that in this product class it was more important that the product stimulates such senses as taste and smell.

The final comment concerning the relation between the colours of the packages and the producers is based on a finding made in pre-study with authentic brands. In that study subjects commented on the colours of the packages, and related the colours to the country-of-origin of the brands. This means that the colour – product relations conveyed meanings of where the brands were produced. Basically, the meanings related to the country-of-origin of the brands were expressed in a negative sense. This means that additional meanings conveyed by the colour – product – country-of-origin relation were about the untrustworthiness and poor quality of the brands. Thus, an interesting implication of the finding made in the pre-study is that countries are associated with colours. The finding was made in all four tested product classes, i.e. painkillers, medicine against heartburn, cough mixture, and medicine against sore throats.

### Taste

The attribute of taste was only included in product class 2, i.e. medicine against sore throats, where it was the most important attribute. In that product class the second most important attribute was colour. Based on the interview data the present study postulates that the two attributes, i.e. taste and colour, are closely related to each other. In this product class a conclusion is that those packages were preferred where both the *colour and the taste conveyed iconic and denotative meaning*. Further, those packages were

commented on in a positive sense where the colour and the taste communicated the same meanings.

Basically, most subjects preferred the yellow package that included the taste of honey and lemon, and the blue package that included the taste of menthol. As said, packages with these combinations were also commented on in a positive sense, even if the subjects did not prefer these packages in the ranking due to taste, for example. This means that they did not necessarily rank these packages as one of the most preferred one. In fact, subjects commented also on the packages where the colour and the taste did not convey shared meanings. Those packages were commented on in a negative sense, claiming to be confusing and conveying conflicting meanings. This finding lends support to the past research (e.g. Pham and Johar 1997; Ratneshwar and Chaiken 1991) according to which effective communication requires that the consumer should understand and accept meanings. Subjects also said that those particular packages are peculiar, and that they convey the meaning of an untrustworthy brand.

### Conclusions

In conclusion, the current study shows that colour indeed is an important design element as it has an impact. In this study colours had a greater impact on preferences than the other design elements of the study, i.e. shapes and fonts. In this study colours also conveyed more meanings than the other design elements of the study. This claim is based on the fact that more spontaneous comments were made during the interviews concerning the communicative function of colours than of shapes and fonts. In fact, the few spontaneous comments concerning shapes indicate that in this study shape was basically linked to the functional aspects of packages. Fonts, on the other hand, seemed to mainly have an aesthetic function.

Despite the fact that the present study did only scarcely find meanings attached to the attributes of shape and font, the study does not claim that the two signs do not communicate. In this study the shapes of the packages conveyed meanings about particular products or product classes, whereas Mr Tuomas Kota supported the communicative function of fonts. He said that font number 1 conveys meaning of a conservative brand, font number 2 conveys meaning of a modern brand, and the third font conveys meaning of being neutral and a follower, indicating that the brand follows the market leader.

In fact, in accordance with the semiotic approach, the present study emphasises that everything communicates. The fact that more spontaneous comments were made concerning colours than shapes and fonts may indicate two things. To begin with, it may mean that more meanings are attached to colours. Further, it may also indicate that colours are more effective than the other design elements of the current study in communicating non-verbally with consumers.

Based on the findings, this study postulates that consumers use the design elements of packages as signs. In other words, the study suggests that consumers use design elements as signs that communicate something about its object, i.e. product. The study also found that signs conveyed different meanings depending on the context. This issue

is discussed more closely in the following section. However, an interesting notion is that it appeared that the subjects sought for different signs depending on the context. For example, when it concerns painkillers such signs were sought for that conveyed meaning about the trustworthiness of the product. It appeared that trustworthiness was conveyed through the knowledge of the producer. However, it was non-verbally also communicated through the colours found on the packages. When it concerns medicine against sore throats, the attribute of taste was regarded as the most important attribute of the brand. An important notion is that those brands were preferred and commented on in a positive sense where the signs communicated shared meanings. This refers, for example, to cases where a certain colour communicated the particular taste as an iconic sign. An essential implication of the previous discussion is that product classes have meanings attached to them, and that such signs as colours conveyed product class meanings. This conclusion is supported by findings made in pre-study concerning authentic brands.

### 7.1.2 The impact of colours within a context

The second research question was about detecting if the impact of colours is dependent on the context, which was represented by a product class in the present study.

The study supports the second research question. The part-worths scores of the various colours differed between the two product classes. The scores showed that the preference order for colours when it comes to painkillers was *blue, green, yellow, and red*. For medicine against sore throats the order was *yellow, green, blue, and red*. The orders show that the colour levels were preferred differently in the two product classes. Thus, based on this finding it can be postulated that one particular colour may have a strong impact on the decision-making in one product class, whereas another colour may have a strong impact on the decision-making in another product class. As a consequence, the study postulates that the impact of colours varies, which means that the impact of colours is dependent on such a context as the product class. The study has claimed that past research on colours has partly neglected the issue of context. Thus, an implication of the findings in the present study is that the context indeed is an important aspect of colours.

A comment can be made concerning the other design elements of the study. In this study the scores of the part-worths concerning the attribute levels of shape were comparable between the two product classes. This concerns the other design elements of the study as well, i.e. font. This means that the shape of landscape and font 1 were preferred most, and that the shape of square and font 3 were preferred least regardless of the context. At least for the two product classes in this study it can be stated that based on those results the impact of font and shape were not related to the product class.

Below some explanations are given to why the different colours defined in this study were perceived differently. The discussion below is based on the interviews performed during the rankings of the packages.



### Blue

Blue was the most preferred colour level in product class 1. It appears that this colour was preferred on the packages of painkillers, as it was perceived as an *aesthetic* colour. This means that the study lends support to past research according to which blue is a preferred colour in general (e.g. Middlestadt 1990). However, blue appeared to have an impact on preferences in this study also because of what it communicated. The most obvious meanings that blue communicated were the *trustworthiness* and *quality* of the brand. As discussed previously, these meanings seemed to be important aspects of brands when preferences of particularly painkillers were stated, as this product class involve pharmaceuticals that the subjects of the study perceived as real and serious pharmaceuticals. As pointed out earlier, this indicates also that product classes have meanings attached to them.

When it concerns product class 2, i.e. medicine against sore throats, it appears that the colours of green and blue were related to the *tastes* of mint and menthol. On the one hand, some subjects had difficulties in telling the two tastes apart. On the other hand, some subjects were confident about relating green with mint and blue with menthol. This is an interesting finding as mint indeed is a green herb. Another interesting notion is that menthol is basically a compound produced by using oils from, for example, herbs such as mint.

In addition to taste, blue was linked to the *effectiveness* of the product. In product class 2 subjects associated blue with freshness, and this relation was further related to the usage of the product. In fact, it was stated that freshness is linked to the *cure* of the illness. At the end this means that the colour of blue was regarded as a colour that helps to ease the pain of a sore throat.

### Green

Green was regarded as an *aesthetic* colour in both product classes. Thus, the colour was, on the one hand, commented on as being an appealing colour. On the other hand, it appeared that green was preferred particularly in product class 1, as it is the main package colour of an authentic brand. This brand is the market leader in this product class, and it appeared from the interviews in all three studies, i.e. the pre-study, preliminary conjoint study, and final conjoint study, that this particular brand was associated with the colour of green. Thus, it can be postulated that this colour was perceived as a typical colour within the product class of painkillers. As said, typicality means that the subjects stated that some colours are more typical than others in a product class, i.e. colours that are found on most of the packages or on the package of the brand leader, for example. A finding that is particularly related to painkillers is that typicality conveys positive aspects of the product. Hence, in addition to the colour of blue, also the colour of green appeared to convey meanings of the *trustworthiness* and *quality* of the brand in product class 1.

As mentioned, the subjects related the colours of green and blue to the *tastes* of mint and menthol in product class 2, although some subjects associated green with mint. As it appears colours were mostly related to the tastes of the products in the product class of medicine against sore throats. However, the colour of green also conveyed meaning

about nature, and it was implied during the interviews that the product in a green package is a natural product. This means that the colour of green also communicated meaning about the *ingredients* of the product.

### Yellow

In general yellow was perceived as a colour that attracts *attention*. This finding was made in both product classes.

In addition to attracting attention yellow was regarded as a peculiar and deviating colour in product class 1, i.e. when it concerns painkillers. In fact, past research (e.g. Garber et al. 2000a) stress that deviating colours attract attention. Despite the findings about the colour of yellow concerning attention and deviation, the present study cannot lend support to past research concerning the relation between deviation and attention as the study is based on oral data only. In addition to being perceived as a deviating colour, yellow was perceived as some sort of a neutral colour. This means that the subjects were in general not able to comment on the colour of yellow, although the subjects appeared to accept the colour in the context of painkillers.

In product class 2, i.e. medicine against sore throats, the colour of yellow was the most preferred colour. In this product class yellow was not regarded as a peculiar colour. On the contrary, it was preferred as it was linked to the *taste* of the brand. In general it can be concluded that yellow was associated with the tastes of honey and lemon.

When it concerns the relation between the colour and taste an interesting finding was made. As can be recalled, in the final conjoint study the colour of yellow was the most preferred colour and the taste of menthol was the most preferred taste. Based on those results it could be concluded that consumers are willing to accept that the colour does not convey meaning about the taste as an iconic sign. When it concerns the authentic brands the colour of yellow appears on brand packages with the tastes of honey and lemon as well as the neutral taste, blue appears on brand packages with the tastes of menthol as well as mint, and red on packages with neutral taste. As it appears, most of the authentic brands have aimed at iconic colour – taste relations, although not all of them. Even if the iconic relation was not a precondition for preferring a particular package in the final conjoint study, it must be pointed out that the subjects in general commented on other than iconic colour – product relations as being confusing. Sometimes the subjects commented on the confusing relations in a negative sense. For example, subjects said that these relations appeared to convey the meaning of even untrustworthy brands.

### Red

Red was the least preferred colour in both product classes. However, some interesting notions can be made. To begin with, red was commented on as a colour that attracts *attention* in both product classes, although red as a colour that attracts attention was particularly pointed out in product class 1, i.e. painkillers. Further, red was commented on as a deviating colour when it comes not only to product class 1, i.e. painkillers, but when it concerns pharmaceuticals in general. This notion was made both in a positive and a negative sense. Some subjects said in a positive sense that red is an exciting and

different colour that attracts attention on pharmaceuticals. Others stressed that the colour is too deviating, which indicated a negative perspective.

In product class 1, it appeared that the colour of red conveyed the meaning of *pain*, and also this interpretation was made in a positive and a negative sense. Some subjects associated red with pain, and it appeared that pain involves a positive meaning when it was, for example, related to the effectiveness of the product. This means that some subjects said that the colour of red cures the pain better than other colours. However, some subjects stated that red involves a negative meaning, as it resembles the illness itself. Red was associated with blood, for example, and thus a negative link to illness occurred.

Red was related to pain in product class 2 as well. However, in this product class the colour – product relation was commented on in a negative sense only. This means that subjects implied that red means heat, for example, and having a sore throat means that your throat is burning. Thus, instead of preferring those colours that resemble pain, the subjects preferred those colours that cure the pain in this product class. This means that the colour of blue was often mentioned as a colour that eases the pain.

Furthermore, the colour of red was in general considered as being a problematic colour. However, it appears that the colour may be preferred in some extreme cases. Thus, an interesting finding was that red was linked to pharmaceuticals that have a stronger effect. This means that the subjects stated that if they would need stronger medicines, red would be an accepted and preferred colour. The discussion concerning the colour red supports the suggestion that product classes have meanings attached to them.

### Conclusions

In general, it can be claimed that cold colours were preferred in product class 1, i.e. painkillers. Thus, blue and green were preferred more than the warm colours of yellow and red. In the other product class no such classification can be made. However, a finding in product class 2 was that the attributes of colour and taste are closely related to each other. Particularly yellow, green and blue were commented on in a relation to taste.

When it comes to studying certain colours many previous studies have particularly focused on the colours of blue and red. Concerning the colour of blue, past research (e.g. Gordon et al. 1994; Belizzi and Hite 1992) has in accordance with the current study found that the blue conveys the meaning of quality. The current study made this finding particularly in product class 1, and thus, the present study lends support to past research concerning that finding.

When it comes to blue previous studies have also postulated that the colour has a positive impact. For example, it is found that as a background colour blue has a positive impact on attitudes and purchase intentions (e.g. Gorn et al. 2004; Babin et al. 2003). Red, on the other hand, is claimed to be a negative colour. For example, red is found to have an arousal effect (e.g. Belizzi and Hite 1992), which in some contexts may be a negative feature. The present study can only partly lend support to these findings. Basically, this study can lend support to the findings according to which blue is a colour

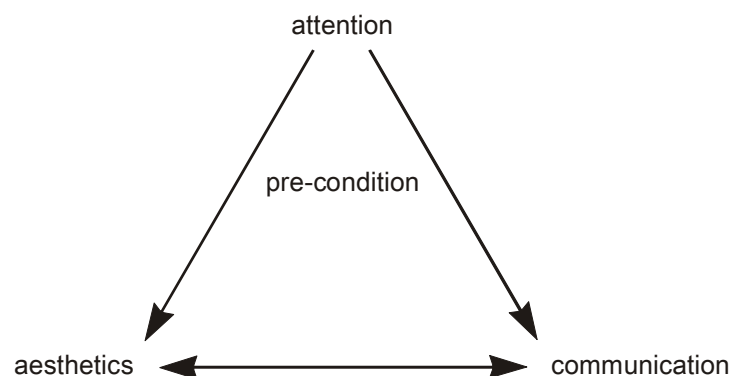
that is perceived positively, and which appears to be preferred in general. Based on that, the current study can postulate that blue appears to be a so-called safe colour from an aesthetic point of view. In addition, the study found indeed that blue conveyed meanings that apparently had a positive impact on preferences. Red, on the other hand, was perceived as a negative colour by some subjects in the present study. However, in the current study red apparently also had a positive impact on preferences particularly when it concerns product class 1, i.e. painkillers.

In accordance with the emphasis in the second research question concerning colours in general, this study concludes that the perception of red as well as the other colours defined is linked to the context. However, the study postulates that the impact of colours is not only related to the context, but it suggests that further explanations of different meanings could be found in studying the person behind the ranking. Thus, additional understanding of the colour – product relations could be gained by studying colour pragmatics, i.e. the sign – interpretant relations. In other words, this study found that colours, such as red, conveyed different meanings in different contexts. However, the study suggests that additional understanding of the different meanings that are related to the context may be gained by studying the persons who create the meanings.

## 7.2 THE ROLES OF BRAND COLOURS

In order to understand the impact of colours on decision-making in low-involvement purchasing the study processed the interview data in three phases. To begin with, data was reduced into major themes, i.e. attention, aesthetics, communication, and other comments. Second, the findings within the themes were processed by applying laddering. Third, the laddering findings, i.e. laddering codes within the theme of communication, were penetrated further by applying a semiotic approach.

The present study has pointed out that colours have several functions, and based on the empirical study it was found that the impact of package colours on the consumer is threefold.



*Figure 40. Functions of colours*

First, the study found that colours on packages attract attention, although the study does not claim that brand preferences are directly based on that function. However, the study emphasises that colours as a means of attention are to be regarded as a precondition for having an impact on consumers' decision-making. The aesthetic value that colours carry is a function that apparently had an impact on subjects' preferences. Thus, secondly, the study postulates that consumers' decision-making is influenced by the attractiveness of colours. This means that package colours may have an impact because of their aesthetic value. Third, the study found that colours communicate. This means that the study suggests the product meanings may influence that consumers' decision-making as well as brand and product class meanings conveyed by package colours.

### 7.2.1 Brand colours attract attention

As it seems, one of the prime functions of colours is to *attract attention*. This study does not claim that preferences are based on the fact that colours attract attention. However, it can be implied that the function of attention has an implicit impact on consumers, as it can be regarded as a precondition for having a further impact on decision-making.

This study suggests that the function of attracting attention is twofold. To begin with, this study postulates that colours attract attention because it is *voluntary*. This means that consumers may use colours intentionally in order to fulfil different tasks in a store. In this study the subjects associated colours with brands and product classes. It appeared that these associations were often based on the colours found on the packages of authentic brands, and some of the brands appeared to be brand leaders as well. As pointed out, the present study postulates that consumers may use colours in search of brands and core products. The study lends support to past research according to which consumers use colours intentionally in order to identify brands (e.g. Garber et al. 2000a). However, the present study postulates that consumer use colours not only for identification of brands but product classes as well. This means that consumers use the colour – brand associations they have in their minds for searching and for identification.

As can be recalled authentic brands were evaluated in the pre-study. An interesting finding in the pre-study was that some product classes were composed of brands with comparable packages whereas other product classes were composed of brands with packages that had very little in common. In other words, some brand packages were very similar, whereas other differed very much.

Similarity was, for example, gained through the use of colours. The packages in product classes such as c-vitamin could be identified with the colour of yellow as it appears on all the brands. In other words, it is evidently a typical colour within this product class. The different appearances of the packages were also gained by the use of colours. In other words, the packages within product classes such as medicine against heartburn and cough mixture were designed by using a large variety of colours and a mixture of colours. Thus, no colour could be claimed to be typical within those two product classes. It also appeared in the pre-study that no particular brand seemed to be strong when it concerns cough mixture against retraining cough, for example. Neither was the product class associated with a particular colour. As said, the product class of

painkillers appeared to be associated to colours. The present study found that the main colour of one particular brand appeared to be typical as the product class was associated to the colour of that particular brand. As it seem, the colours of that brand were used as a means of voluntary attention.

As far as voluntary attention is concerned, it can be implied that when the consumer aims at a specific product class she may use the colours that can be claimed to be typical within a product class. This means that she may use the colours of a specific brand within the particular product class she is aiming at, such as the colours of a strong brand. This does not necessarily means that she intends to buy that particular brand. Alternatively, the consumer may use colours she knows that a specific product class can be identified with. The aforementioned colour of yellow on packages for c-vitamin may exemplify this. From a consumer point of view, this may mean that having a particular colour in mind shortens the search process for the intended brand or product class.

In addition to voluntary attention, the present study suggests that colour attracts attention because it is *involuntary*. This means that colours attract our attention even if we do not intend to pay attention to a specific object. This means that the current study implies that colours have an indirect impact on consumers, which suggests that consumers use colours unintentionally.

Past research has found that deviating colours attract attention, and it can be claimed that this refers to the involuntary attention to colours that the present study suggests that colours may attract. In fact, also the present study found that deviating colours were noted by the subjects. In particular, the colours of yellow and red were pointed out as being deviating within the contexts of the study. However, the present study can only partly lend support to the previous finding by past research as the finding in the present study was basically based on spontaneous comments made by the subjects. Thus, the study gives no support to involuntary attention to colours that would be based on physiological responses, i.e. on actual eye movements. Thus, in this study the finding is based on the fact that the subjects during the interviews orally and spontaneously pointed out those colours that they perceived as peculiar and deviating within a context.

It can be claimed that the involuntary attention to colours in particular is acknowledged within the field of marketing. It appears, for example, that marketers use warm colours such as yellow in order to attract the attention of consumers. As said, previous research has indeed found that warm colours attract attention. Thus, it can be found in the contexts of retail stores that marketers inform customers about reduced prices on yellow price tabs, and it also appears that sales are informed by using the colour of yellow.

### 7.2.2 Brand colours evoke aesthetic response

The present study found that colours have two functions that apparently influence preferences.

The aesthetic value that colours possess appears to be one of the two functions. In this study subjects said that they preferred some packages due to the colours. In other words,

subjects maintained that they preferred some brands simply because they liked the colours of the packages. Some of the comments were made in relation to the context, whereas others were stated without referring to the context.

The finding above means that in low-involvement purchasing consumers may choose brands because they like a specific colour that appears on the brand packages. Obviously, the finding indicates that aesthetics indeed is an important aspect of package design as it may have an impact on consumers' decision-making.

The finding concerning the aesthetic value of colours lends support to past research (e.g. Bloch 1995), according to which design and aesthetics are important marketing issues. Past research (e.g. Veryzer 1995a) has found that design and aesthetics have impact on the preferences and decision-making of consumers. In fact, it has been found that design plays an important role in purchases when a consumer chooses between two products (e.g. Kotler and Rath 1984). Consequently, the importance of design is emphasised in past research by stressing that design is recognised to be a key marketing element (e.g. Veryzer 1995b). Still, it appears that design issues are rare in journals of marketing research.

### 7.2.3 Brand colours communicate

The study found that preferences were influenced by the meanings conveyed by colours. This means that communication is the other function that the study detected that influences preferences. Thus, the study postulates that in low-involvement purchasing consumers may choose brands, because of the meanings conveyed by the colours on packages. As said, the study suggests that colours convey not only product meanings, but brand and product class meanings as well.

This study focused on the sign – object relation, i.e. the colour – product relation. This means that the study focused on detecting those meanings that the colours convey about the core product.

By applying a semiotics approach, this study concludes that colours are related to the product in three different ways. First, the study found that colours convey meanings about the products as *iconic signs*. This means that colours convey meanings about the products, because the colours resemble the core products. This study found that colours conveyed such iconic meaning about the product as the *tastes* and the *ingredients* of the product. An implication of this finding is that the colours on packages may communicate that the product has a particular taste or that the brand may contain a specific ingredient.

Second, the study found that colours conveyed meanings as *indexical signs*. This means that colours were found to function as signs that convey meanings about the core product through association. A basic assumption is though that a logical and obvious link is found between the sign and the object. In this study colours stood in an indexical relation to the product when the colours conveyed meanings about the specific illness that the product class in question was intended to deal with, i.e. *pain* and *cure*. This

means that the study has suggested that the colours defined in the study communicated pain and cure through associational relations. An implication of this finding is that the colours on packages may be associated with the pain that the product is intended to cure, or the colour may convey meanings of whether the product will cure the illness or not.

Third, this study lends support to past research by finding that colours communicate as *symbolic signs*. This means that the colour – product relation is based on an arbitrary relation. In this study it was found that colours conveyed the meanings of the *quality*, *trustworthiness* and *effectiveness* of the core product.

An important notion is that colours are in general referred to as symbolic signs. Thus, colours are claimed to convey symbolic meanings although contradictory arguments can be found as well. For example Woods (1981) has implied that colours do no longer have any symbolic meaning on packages, as consumers are exposed to packages in all kinds of colours. This would mean that the symbolic meaning of colours no longer exists. Nevertheless, the current study emphasises that colours do communicate as symbols, although the perspective of colours as symbols only is limited as far as their communicative impact is concerned. Thus, an important implication of the findings of the present study is that colours cannot be regarded as signs that communicate symbolically only. This study claims that colours function as indexical and iconic signs as well.

#### 7.2.4 Conclusions

The interview data, which was collected simultaneously as the conjoint tasks were performed, was processed in three phases - data reduction into major themes, by applying laddering, and by applying a semiotic approach. This processing of data resulted in that the study implies that the role of colours on packages is threefold; the two latter functions having a direct impact on the decision-making in low-involvement purchasing. First, colours were found to attract attention, and this function is implied to be a precondition for colour perception. Second, the study found that colours have an aesthetic function. Focusing on colours as a means of communication the study found, thirdly, that colours indeed do have a communicative function.

Hence, the study concludes that an analysis of the sign – object relation, or the colour – product relation may enhance the understanding of the communicative function of non-verbal signs, such as colours in this case. This means that by performing a semiotic analysis the study emphasises further that the approach of semiotics provides concepts that can be used to understanding colours as means of communication. In conclusion, the empirical design of the study was able to produce plausible answers to the research questions.

Although this study acknowledges in accordance with past research the impact of aesthetics, the present study postulates that the communicative impact of colours may influence the decision-making in low-involvement purchasing more than the aesthetics of colours. This postulation is based on the fact that rankings in this study were more



often spontaneously motivated with comments related to the communicative function of colours than with comments related to the aesthetic function of colours. As said, the study found that colours communicated various meanings about the product. However, the study found that colours appeared to communicate other issues as well such as the country-of-origin of the product, for example. In addition, brand and product class meanings were detected.

It is important to point out that the various functions emphasised by the study may be overlapping. For example, involuntary attention may in fact also indicate voluntary attention. As said, the consumer may unintentionally be attracted to colours as some colours have the ability to attract the eye of the consumer physiologically. However, consumers may be attracted to some colours not only involuntary but voluntary as well. This means that just as consumers are unintentionally attracted to some colours they may intentionally use colours to search for or identify a brand or product class, for example. As said, warm colours such as yellow are apparently used to emphasise sales, as it is known by marketers that yellow attracts involuntary attention. Thus, at the same time as consumers' eyes are physiologically attracted to warm colours, consumers' may intentionally use colour yellow when searching for sales.

The suggestion that the functions of colours may overlap also means that preferences and brand choices may be influenced by the aesthetics and communicative functions of colours. An additive effect of the various functions is gained when colours are perceived as attractive, and when those particular colours communicate something that the consumers value in the specific purchase situation.

When it concerns the impact of context some notions can be made. For example, consistent with the conclusion drawn by past research (e.g. Gorn et al. 2004; Babin et al. 2003), the present study maintains that blue may indeed has a positive impact. Past research (e.g. Babin et al. 2003) has postulated that blue may encourage shopping behaviour in one type of retail store, but not in another type of retail store. In accordance with that conclusion, the present study implies that blue may convey quality in one product class, such as painkillers, but convey something else in another product class, such as taste, in medicine against sore throats. This also means that the quality meaning conveyed by blue in one particular product class may have an impact on preferences and brand choices in that particular product class. It also means that meanings conveyed by other colours may have a greater impact on preferences and brand choices in other product classes.

Turning back to the overlapping functions of colours, the study also concludes that the aesthetic value of colours may have a greater impact on preferences and brand choices in some product classes whereas the meanings conveyed by colours may have a greater impact on preferences and brand choices in other product classes.

### 7.3 IMPLICATIONS OF THE STUDY

Next the implications of the study are discussed. The present study has implied that the communicative role of such design elements, as colours may not always be recognised.

It can be claimed that the scarce number of colours studies supports this notion. In fact, it is argued that such design elements as colours may be selected for their appealing and aesthetics value only (Gorn et al. 1997). It has even been argued that colour selection is based on habit, convenience and trends (Schindler 1986).

As a consequence, the study stresses that the selection of colours on packages is not merely a design issue, and that colours should not only be selected because they have an aesthetic value, as colours apparently also convey meanings on packages.

### 7.3.1 Emphasising the functions of colours of packages

The present study emphasises that the package is an essential part of the product. It can be postulated that the package is sometimes such an integrated part of the product that it can even be difficult to tell those two apart. For instance, when it comes to a bottle of perfume, it may be hard to determine whether the decision-making is based on the product itself or whether the product comes with the appealing bottle. There are also product classes where brands are primarily only differentiated by the package. In product classes like salt, milk, wheat meal, and many pharmaceuticals, it can be rather hard, if not impossible, to find differences between the products themselves.

Packages have many functions. A good package should protect the product during distribution; it should not add extra costs to the product, it should allow convenient storage, be easy to use without forgetting the ecological values (Hine 1995; Gershman 1987).

By studying the impact of colours on packages, this study implies that the role of colours on packages is threefold. Colours on packages attract attention, they have an aesthetic function, and they communicate meanings. In fact, the study suggests that an additive effect may be gained when the functions of colours on packages support each other. Thus, the designer or manager may select yellow because it attracts attention. Some subjects may even find the colour attractive. However, yellow may also convey meanings, such as cheapness, which may further mean bad quality in a context. An issue is consequently whether the meanings conveyed by yellow are intended by the designer or manager, or not, and how the consumer responses to those meanings. Will she accept the colours, and choose the particular brand or not?

The present study implies that being aware of the functions of colours discussed above may enhance the understanding of the impact of colours on packages. The study found that colours convey meanings, and that these meanings have an impact on consumers' decision-making. Thus, the study suggests further that being aware of the communicative impact of colours may enhance the understanding of meanings, such as product, brand, and product class meanings, conveyed by the package. This means at the end that, if managed properly, colours can be utilised to communicate meanings that the consumer values. This study focused on low-involvement purchasing, however, the finding also imply that, if managed properly, colours can create consumer loyalty as well. Consequently, being aware of the impact of colours may lead to even more effective use of colours, and to the design of even more effective packages.

### 7.3.2 The communication process with emphasis on meaning

An assumption when aiming at effective communication is that an effective communication process starts when the sender creates a message which is understandable and relevant; it is expected to convey a compatible meaning for the consumer.

The definition of the concept of effectiveness varies slightly between the two schools of communication, i.e. the process school and semiotics. In a marketing context, it can be maintained that effectiveness is connected with the definition of the process school. In that school of communication effectiveness indicates that the sent message and the interpreted meanings are as similar as possible. Pre-understanding of the possible interpretation by the consumers is emphasised at this phase<sup>36</sup>. Semiotics, in contrast, is not interested in whether a message is understood in the intended way or not. Primarily, it is only interested in *how* a sign communicates, and *why* a sign or a message is interpreted in a certain way. This means that the communication has not necessarily failed if a message is interpreted differently from how the sender intended it to be interpreted. According to semiotics, the reasons for different interpretations might be found in the context. For instance, a context can be a product class as in the present study, or it can be explained by the cultural differences between the sender and the receiver. As a consequence, the message is not misinterpreted. On the contrary, the message is interpreted correctly in that particular context, which is the receiver's culture, for instance.

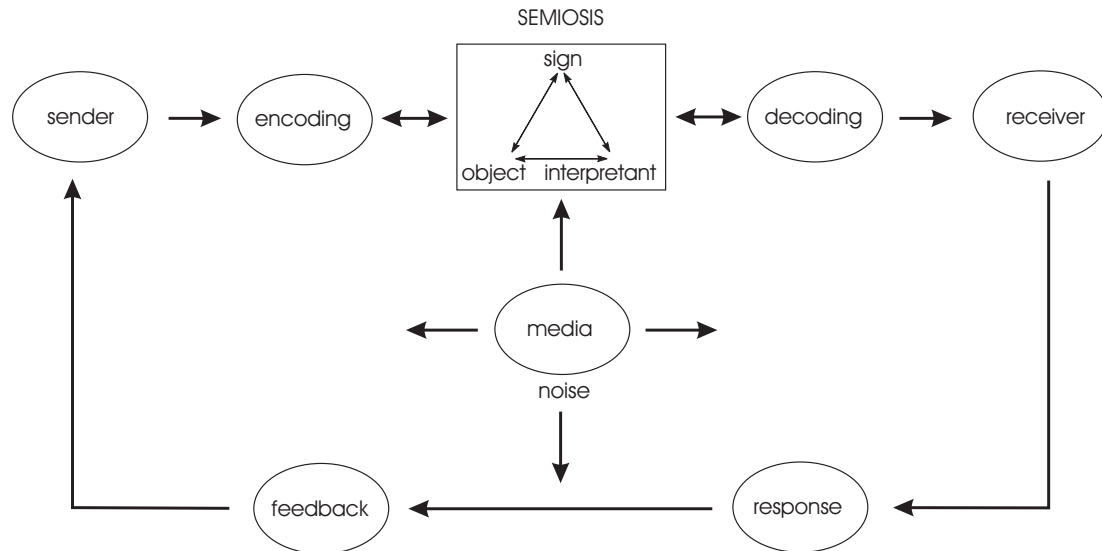
In this study the two schools of communication are not regarded as contradictory ways to study communication. On the contrary, it is implied that they support each other. Thus, this study maintains that marketing communication is primarily a process, which means that an activity is a transmission of a message. The two-way communication model illustrates this transmission, and the inevitable phases of a planned communication activity. However, communication should also be regarded as a human activity, in accordance with the interpretive approach. This means that the interpretation of a message is not only based on the core message itself. On the contrary, it means that many other issues as well influence the interpretation of the message. As said, the interpretation depends on the culture and such contexts as product classes, for example. In addition, the interpretive approach points out that the person and her personal experiences may also influence every interpretation. This goes in line with the suggestion of the study that an additional understanding of the impact of colours could be found in studying sign – interpretant relations, i.e. by studying the persons who create the meanings.

As said, in the present study communication has basically been looked upon as a process, however also taking into account that communication means production and exchange of meanings. Figure 41 illustrates this. The figure stresses that in order to understand communication in a marketing context both the concept of process and the concept of meaning are essential. Communication is a process, and this is illustrated

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<sup>36</sup> See the semiotic marketing process suggested by Hoshino (1987).

with arrows. Communication is also production of meanings, and this is illustrated with the semiosis –box, which represents the interpretation of the sign. Thus, the present study stresses that both the concept of the process and the concept of meaning are essential in order to understand communication in a marketing context.



*Figure 41. Semiosis in the traditional communication process*  
(Kauppinen 2001:128)

Figure 41 illustrates that two partners are a precondition for communication. This assumption is in line with the traditional two-way communication perspective on communication. The assumption indicates that there is someone who sends the message with a meaning, and someone who receives and interprets the signs in the message, and evidently creates her own meaning. In a marketing context the sender is usually a company and the receiver is a consumer. The study has emphasised that the message may be sent through an advertisement or a package, however it may also be sent through a displays window, interior, and the clothes of the employees, for instance.

The figure suggests that both the encoding and the decoding phases are closely related to *semiosis*, and that the communication process is not only straightforward. The double-ended arrows indicate that the phases of encoding and semiosis, as well as decoding and semiosis are in fact overlapping. In other words, the sender uses signs to encode a meaning. The receiver decodes the signs and creates her own meaning. Thus, effective communication through packages is achieved when these meanings are related to each other, i.e. when shared meanings are created. However, as stressed by past research (e.g. Lindberg-Repo 2001), meanings should rather be explored from the consumer point of view in a marketing context, as at the end the meanings created by the consumer are the meanings that have an impact on her behaviour.

As said, semiosis is a superordinate concept for a sign, and it consists of the elements of sign, object, and interpretant. The elements in the semiosis by Peirce are closely related to each other, and semiosis can only be understood when all three elements are present. In order to create as effective a message as possible, the sender should select such signs that are connected with its object, and understood by the receiver. A sign is exemplified

with a colour, which stands for an object, such as a product. The interpretant is the meaning created by the sign – object relation, for example such a meaning as quality of the product.

When a message that is created by signs has been transmitted, the following phase is decoding. A precondition for decoding is that a sign draws attention to itself. As said in the theoretical framework, attention means that the sign is perceived, and this study claims that it is a precondition for colour communication on packages. Thus, it is reasonable to assume that if a sign is perceived, it means that a meaning is created in the mind of the receiver. It can also be implied that perception is a precondition for an action. Therefore, it can be argued that the way in which the consumer responds to a message is based on the meaning that is created in the mind of the consumer. As a result, it is reasonable to claim that understanding the semiosis, i.e. the relation between the sign – object and the interpretant, may enhance the understanding of the communication process and its phases.

As it appears, figure 41 not only shows how communication is looked upon in this study, but is also suggests how the understanding of package communication can be enhanced in order to achieve effective package communication. Concerning the approach of semiotics, the present study suggests that it provides concepts and tools to enhance the understanding of marketing communication processes as well as colours as non-verbal signs on the package.

When it concerns colours as non-verbal signs the current study suggests that the phenomenon of colour can be better understood by defining it as a sign, as has been done in figure 38. This means that by looking at the colour as a sign it may be better managed in a marketing context. The levels of meaning, the relation between the sign and the object, the notion of various contexts, and the different types of signs are suggested to be issues that determine how colours convey meanings. The figure suggests that by analysing the sign – object relation, the interpretation can be understood and presumably also predicted. Pre-understanding of the forthcoming meanings and interpretations is evidently an important task in order to communicate effectively in a marketing context.

### 7.3.3 Preconditions for effective communication

The concept of effectiveness was defined earlier in the study. Without no doubt effectiveness is an important concept within a marketing context, and it indicates that marketing communication activities should be effective, and this concerns packages as well.

This study showed that colours on packages communicate the products. In some cases colours conveyed such meanings that had a positive impact on the preferences. In other cases the colours on the packages conveyed unwanted meanings, which then had a negative impact on the preferences. This means that a pre-understanding of these meanings would be required in order to be able to communicate as intended.

Berlo (1960) points out that every communication situation is unique; they all differ from each other in some way. As a result, the sender and the receiver may interpret the same message differently. The same message may also result in different meanings as perceived by different receivers. Obviously, it means that a message is seldom fully understood. This means further that a message that is sent is never interpreted *exactly* in the way intended by the sender (e.g. McQuail 1975). Nevertheless, effectiveness indicates that the receiver understands the message, and that the interpretation is as close as intended. As a result, effective marketing communication requires that some preconditions are met. As listed previously, McQuail (1975) suggests that effective communication means that signs should be understood in a common way, they should be interpreted in advance by the sender, and that the signs used should be conventional and convey shared meanings.

The above indicates basically that communication is effective when the receiver of the messages understands them as intended by the sender. In other words, that the two partners involved share meanings, regardless of whether the meanings are created by iconic, indexical, or symbolic signs.

Obviously, packages are effective when they have an impact on the consumers that is intended. Thus, in order to communicate effectively packages should be composed of such signs that the consumer understands as intended by the company. The study suggests that an additive effect is gained not only when the various functions of colours support each other, but also when the various signs on packages support each other. As said, the present study implies that all signs on packages communicate, i.e. brand name, producer, country-of-origin, product information, price, size, shape, material, pattern, font, and colour. In other words, additive effect is gained and effective communication may be achieved when the various signs on packages communicate shared meanings.

Two additional issues must be emphasised in order to communicate effectively within a marketing context. First, the study emphasises that effective communication means using the right signs within the particular context. Second, the study postulates that effective communication means aiming communication activities to smaller targets.

#### 7.3.4 Effective communication within a context

It is well acknowledged that brands have meanings attached to them. However, this study concludes that product classes as well convey meanings that may have an impact on consumers' decision-making, and that colours are signs that convey these meanings. This is an important issue to take into account when colour selections are made.

In this study the same colours conveyed different meanings depending on the context. Apparently colour is one of the signs that convey meanings about the product class. Thus, an essential implication of the study is that the context indeed is an important aspect of colours that should be noted when colour selections are made concerning not only package design, but other marketing communication activities as well. Thus, being aware of the impact of the context may enhance predicting the interpretations that will be made by the consumers.

The present study found that colours are related to the product, and that brands and even product classes are associated with colours. This means that in package design, consideration should be paid to evaluating the meanings attached to product classes and the colours of specific brands found within product classes. Concepts such as typicality and deviation appeared to be essential aspects of colours regarding this issue. Thus, it appeared, on the one hand, that typical colours may mean trustworthiness. On the other hand, deviating colours may mean attention, simultaneously as it appeared that deviating colours may be appealing as well.

This study focused on two product classes within the healthcare industry. With reference to the changes in the healthcare industry mentioned in the study, it is fair to assume that the role of the packages of pharmaceuticals will change in the future. These changes will most probably have an impact on the design of the packages of pharmaceuticals and the overall communication. As said, healthcare is moving from the authorities more to the responsibility of the individual consumer. The role of self-service was discussed previously as well as the trend from moving from prescription-only medicines to non-prescription medicines. It was also emphasised that pharmaceuticals may be distributed through new distribution channels in the future. Consequently, it can be assumed that it will become even more important for the producer of pharmaceuticals in trying to differentiate his own brand from those of the competitors. This study has shown that pharmaceuticals have many important aspects attached to them, such as trustworthiness. Thus, it can be implied that the design of many pharmaceuticals has many interesting challenges to meet.

### 7.3.5 Effective communication aiming at specified targets

In this study the same colour not only conveyed different meanings depending on the context, but within the same context as well. For example, the study found that some subjects stated that red is a negative colour. However, some subjects found that the colour of red was an appealing colour, and it conveyed meanings that, on the contrary, had a positive impact on their preferences.

As a consequence, the present study suggests that a further understanding of the impact of colours can be achieved by studying the sign – interpretant relation. In other words, although this study did not aim at clustering subjects based on their rank orders in order to detect similarities concerning their demographics or other characteristics, the present study postulates that the sender should know the receivers, i.e. consumers, in order to communicate effectively.

It is acknowledged that nations are composed of diverse populations (Grier and Brumbaugh 1999), which means that such issues as ethnic and cultural issues should be noted in planning communication activities with consumers. It can be claimed that customisation of products, services, and marketing communication activities are important tasks of today's companies. In fact, this view is supported by Holland and Gentry (1999) and Lavidge (1999) who state that, for example, advertising research is moving from mass markets to segments. Thus, in order to communicate effectively the various communication activities, such as packages should be adapted to the needs and

values of specific segments, which may mean smaller targets. This means using those signs that communicate the right and intended messages in the specific target group. Thus, knowing the receivers not only refers to demographics, by it means understanding values, needs, and also trends that govern behaviour in those particular targets or segments.

In other words, it can be postulated that various marketing communication activities should aim at specified segments. This means that in order to send the so-called right messages the knowledge of the interpretant is a precondition for effective marketing communication.

To conclude, the findings of this study implicate that packages should be regarded as a strategic marketing tool in communicating with consumers. The findings also give a basis to predict that colours on packages have many functions, and a strategic use of colours has many advantageous.

Past research has acknowledged the impact of package colours on such aspects of consumer behaviour as brand identification, attention, brand communication, brand evaluation, and brand choice. The present study concludes that colours on packages attract consumers' attention. In addition, the study maintains that consumers use colours not only for the search and identification of brands, but of product classes as well. Further, the study suggests that preferences and brand choices are made on the aesthetic value that colours possess on packages. Finally, the current study emphasises that package colours communicate the core product, and that package colours convey brand and product class meanings as well. As it appears, it can be claimed that an effective package attracts attention, is appealing, and communicates something that the *specific* consumer values within a *particular* context. Turning back to the last question in the scenario at the beginning of the study; something may indeed persuade Sandra to choose a certain brand. The findings of the current study suggest that it may be the colours of the brand package.

#### 7.4 CONTRIBUTION OF THE STUDY

It can be proposed that the study aimed at theory, method as well as knowledge development.

When it concerns theory development, the aim of the study and the research questions posed indicated that the theoretical framework would be grounded in various areas of literatures. This means that I sought for how the literature dealt with such issues as non-verbal signs in general and such non-verbal signs as colours, the promotional tool of packages, marketing communication, and consumer behaviour particularly concerning low-involvement decision-making, unplanned purchasing, and the stages of consideration and choice in store.

The study found that empirical studies on such design issues as colours with marketing implications are rare, although past research has acknowledged that colours have an impact on consumer behaviour. Thus, this study lends support to past research by



detecting that colours do have an impact. However, past research on the impact of colours has mainly focused on the impact of colours on advertisements. This means that a scarce number of studies have focused on the impact of colours on packages. Thus, this study contributes to the *field of consumer behaviour*, and to the understanding of the impact of non-verbal signs on consumer behaviour in store. More closely, it contributes to the understanding of the impact of package colours on consumer decision-making at the point of purchase, and particularly to the understanding of the impact of colours in low-involvement purchasing.

Further, the study has claimed that the context of signs is a neglected issue. This study contributes to the *field of marketing communication* research by detecting that signs and the meanings that signs convey are indeed related to their context. This means that such signs as colour can only be understood when the context of the signs are taken into account. In this study the impact of colours varied according to the context, i.e. the product class. Also this finding indicates that colours on packages do have an impact on the decision-making of consumers.

There appear to be few studies that have focused on the communicative role of such non-verbal signs as colours on packages. This study lends support to past research that acknowledges that colours on packages communicate the product. However, past research has not explicitly focused on understanding colour communication. Thus, this study aimed at understanding why colours communicate, and it focused on the colour – product relation. In this study colours conveyed meanings, which were identified to stand in iconic, indexical, and symbolic relations to their objects, i.e. products. Thus, the study contributes to the *field of marketing communication* by suggesting that such design elements as colours can be regarded as non-verbal signs, and that they can be understood by applying the semiotics approach. Semiotics is an approach that focuses on understanding signs, and this far it has been a neglected approach within the field of marketing. The present study focused on product meanings, however, the study implies that colours not only convey product meanings, but brand and product class meanings as well, these having an impact on consumer behaviour.

The present study was explorative aiming at understanding a phenomenon in depth. Method development was aimed at by testing whether the empirical design of the study would be able to produce plausible answers to the research questions. The empirical part included a quantitative and qualitative study, for which data was collected simultaneously. In addition, the qualitative data was processed in three phases. First, data was reduced into themes. Second, a laddering procedure was applied to elicit findings within the themes, and third, the laddering findings were penetrated further. In that phase a semiotic approach was applied. This study detected that colour – product relations exist, and that an analysis of these relations resulted in meanings that apparently had an impact on how the subjects ranked the packages of the study. Thus, it can be claimed that the study contributes *methodologically* by showing that the exploratory approach used here, and the design of the study appeared to work well producing meaningful results as compared to previous research.

Finally, the study has aimed at knowledge development by linking various fields of the study. Basically this means that the study implies that colours should not merely be

viewed as an aesthetic aspect of packages. The study implies that colours as well as other design elements of package should be regarded as signs that convey meanings in a vein comparable to verbal signs. From a managerial point of view this means that not only packages are powerful tools, but colours and other design elements as well, if managed properly. The study implies that such signs as colours may have an impact on consumers' behaviour in store not only when it comes to packages and branding, but when it comes to such issues as advertising, displays windows, interiors, and the clothes of the employees as well

## 7.5 EVALUATION OF THE STUDY

When the current study is evaluated it is important to point out that this study is primarily an exploratory study aiming at understanding a phenomenon, which is colour in a given context. Obviously, the nature of the study steered many aspects of this study such as the empirical design of the study, the sample size, as well as generalisations about the findings.

As has been pointed out, the explorative nature of this study has consequences on the sample size. This means that the size of the sample is not crucial. It must also be pointed out that due to the size of the sample, and the sampling procedure used in the study, the findings cannot be generalised. Thus, a critical limitation of the study is that the findings of the study only apply to the sample used. Thus, the findings of this study are not directly applicable in other contexts, and they cannot be generalised. However, it can be claimed that the findings of the study indeed give some guidelines of the impact of colours. This concerns particularly the communicative impact of brand colours on the decision-making in low-involvement purchasing.

The empirical part of the study involved an experimental design in the form of a conjoint study. Although conjoint analysis is an accepted, and also a popular technique to identify, for example, attributes of brands that consumers perceive as important, it carries a number of limitations. To begin with, the technique assumes that attributes attached to a brand can be identified. The current study aimed at identifying the attributes in pre-study. That study was qualitative, and it was based on interviews concerning brand preferences for authentic brands. It must be pointed out that a trade-off was done concerning those attributes and levels of attributes identified in the pre-study when the final design of the conjoint study was done. This means that not all attributes and levels of attributes were included in the design of the study. It also means that the findings of the study only apply to the selected attributes and the levels of attributes.

Further, conjoint analysis assumes that consumers make choices and can state their brand preferences in terms of the selected attributes and levels of attributes. The technique also assumes that consumers make trade-offs concerning the selected attributes and levels of attributes. However, it is fair to assume that subjects behave differently in test situations in comparison to how they would behave as consumers, and when making choices concerning authentic brands. Thus, an experimental design could always be criticised for that reason.

A further limitation concerning the design of the final conjoint study is that the current study lacks hold-out cards<sup>37</sup>, which can be used to determine the internal validity of the estimated part-worths. This study included 16 profile cards, and it was assumed that an increase of 2-3 stimuli would make the conjoint task more difficult to perform.

The limitations of the study concern the qualitative part of the empirical study too. Like all qualitative studies in general, also this study suffers from limitations concerning the risk of interpretation bias. In this study, the data was processed in several phases, beginning from coding it into major themes to more detailed codes. Obviously, an attempt was to gain reliability, which means that during all phases the transcribed interviews were reviewed several times. However, the interpretation bias means basically that the impact of subjectivity involved in the data analysis process cannot be excluded. As already mentioned, the empirical design of the study has consequences on the generalisation of the findings, which here is related to the subjectivity concerning the analysis of the qualitative. This means that the findings of the qualitative study cannot be generalised, but they should rather be seen as evidence of giving some guidelines. However, an issue that supports the validity of the study is that the findings in the quantitative and qualitative study support each other. In addition, the findings in the preliminary conjoint study support the findings in the final conjoint study.

In addition, comments can be made on the techniques used in the qualitative part of the study. That part of the study aimed at understanding meanings attached to colour. It can be argued that this refers to underlying meanings that consumers create unconsciously. One of the techniques that are particularly used in order to research underlying meanings is the projective technique. This technique involves unstructured and indirect questioning where subjects are encouraged to project themselves regarding issues of concern, for example, through story telling. Like unstructured techniques in general projective methods also suffer from disadvantages. The most crucial one concerning the selection of technique in the current study was that projective techniques are pointed out to require experienced interviewers. Concerning the current study this would have meant employing an outside interviewer, and obviously this would have meant that the data collection would have been far too expensive.

The final comment concerning the limitations of the study concern how the study deals with the attribute of colour. Thus, the present study refers to four hues without describing the selected colours according to a standardised system of colour notation, such as Munsell. However, in this study the particular colours were not in focus. This means that the study did not explicitly aim at finding meanings conveyed by particular hues such as blue, green, yellow, and red. The main interest was to be able to answer the research questions defined, and therefore, different colours were selected. This means that other colours could have been selected for the study. A study into finding meanings attached to colours within particular product classes would without any doubt require a specification of the selected colour sample.

This study aimed at exploring the communicative role of colour signs on packages from a consumer point of view with emphasis on the impact of colour signs on brand

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<sup>37</sup> A set of validation stimuli for which part-worths are estimated. These part-worths are compared to the actual set of stimuli in order to evaluate the reliability of the design.

preferences in low-involvement purchasing in various product class contexts. In order to achieve the goal set and to answer to the research questions posed an experimental study was designed. Simultaneously the study tested whether the empirical design of the study is able to produce plausible answers to the research questions. As pointed out by the study, it can be concluded that despite the limitations discussed above, the design of the study produced plausible answers and enabled us to answer the research questions posed.

## DEFINITION OF MAIN CONCEPTS

abstract attribute	<ul style="list-style-type: none"> <li>• stored in memory</li> <li>• created through previous purchases and, for instance, information, advertising, word of mouth</li> <li>• used in a brand positioning strategies</li> </ul>
attention	‘the momentary focusing of information processing capacity on a particular stimulus’
chroma	<ul style="list-style-type: none"> <li>• saturation</li> <li>• the amount of pigment in the colour</li> </ul>
code	• systems of signs
concrete attribute	<ul style="list-style-type: none"> <li>• design element</li> <li>• found at the point of purchase</li> <li>• used in new product design</li> </ul>
connotation	• a underlying and abstract meaning of a sign
denotation	• a real and concrete meaning of a sign
hue	• colour pigment
icon	• a sign that resembles its object
imagery	‘representation of any sensory experience in working memory and can range from a few simple and vague images to many complex and clear images’
index	• a sign that is directly related to its object
interpretant	• the meaning that is created in the mind of the interpreter or the receiver
meaning	• the outcome of an interpretation
object	• something, which the sign stands for
persuasion	‘a conscious attempt by one individual to change the behaviour of another individual or group of individuals through the transmission of some messages’
representamen	• sign
saturation	• chroma
semiosis	• sign + object + interpretant
sign	• anything that conveys a meaning
signified	• the mental concept to which the sign refers
signifier	• the physical representation of a sign
symbol	• a sign that stands for something else

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- Aaltonen, M. 1997. Suomalaisen Johtamisen Arvojen ja Alkukuvien jäljillä? : Myytit ja Konnotaatiot Lukiolaisten Johtamiskäsityksissä. Doctoral Dissertation, Publications of the Turku School of Economics and Business Administration, Series A-1: 1997, Turku.
- Adams, F. M. and C. E. Osgood 1973. A Cross-Cultural Study of the Affective Meanings of Color. *Journal of Cross-Cultural Psychology*, 4 (2), 135-156.
- Alba, J. W. and W. Hutchinson 1987. Dimensions of Consumer Expertise. *Journal of Consumer Research*, 13 (4), 411-454.
- Alba, J. W., Marmorstein, H., and A. Chattopadhyay 1992. Transitions in Preferences Over Time: The Effects of Memory on Message Persuasiveness. *Journal of Consumer Research*, 29 (Nov), 406-416.
- Alvesson, M. and K. Sköldbberg 2000. Reflexive Methodology: New Vistas for Qualitative Research. London: Sage Publications.
- Anderson, P. F. 1983. Marketing, Scientific Progress, and Scientific Method. *Journal of Marketing*, 47, 18-31.
- Arndt, J. 1985. On Making Marketing Science More Scientific: Role of Orientations, Paradigms, Metaphors, And Puzzle Solving. *Journal of Marketing*, 49 (Summer), 11-23.
- Assael, H. 1998. Marketing Management: Strategy and Action. California: Wadsworth, Inc.
- Babin, B. J, Darden, W. R., and M. Griffin 1994. Work and/or Fun: Measuring Hedonic and Utilitarian Shopping Value. *Journal of Consumer Research*, 20 (Mar), 644-656
- Babin, L. A. and A. C. Burns 1997. Effects of Print Ad Pictures and Copy Containing Instructions to Imagine on Mental Imagery That Mediates Attitudes. *Journal of Advertising*, 26 (3), 33-44.
- Babin, B. J, Hardesty, D. M., and T. A. Suter 2003. Color and Shopping Intentions: The Intervening Effect of Price Fairness and Perceived Affect. *The Journal of Business Research*, 56, 541-551.
- Ball, V. 1964. The Aesthetics of Color: A Review of Fifty Years of Experimentation. *Journal of Aesthetics and Art Criticism*, 23 (4), 441-452.
- Barthes, R. 1970. Mytologier. Bo Cavefors Bokförlag.
- Barthes, R. 1983a. Barthes: Selected Writings. In: Sontag, S. (ed.). London: Flamingo.
- Barthes, R. 1983b. The Fashion System. Toronto: McGraw-Hill Ryerson Ltd.
- Barthes, R. 1984. Image, Music, Text. In: Heath, S. (ed.). London: Flamingo.
- Barthes, R. 1992. S/Z. Oxford: Blackwell Publishers.
- Bassin, S. 1988. Innovative Packaging Strategies. *The Journal of Business Strategy*, 9 (1), 28-32.
- Bech-Larsen, T. 1996. Danish Consumers' Attitudes to the Functional and Environmental Characteristics of Food Packaging. *Journal of Consumer Policy*, 19 (3), 339-363.

- Becker, B. W. 1998. Values in Advertising Research: A Methodological Caveat. *Journal of Advertising Research*, 38 (4), 57-59.
- Beckmann, S. C. and R. H. Elliott 2000. Interpretive Consumer Research. Paradigms, Methodologies & Applications. Copenhagen: Handelshøjskolens Forlag.
- Belizzi, J. A., Crowley A. E., and R.W. Hasty 1983. The Effects of Color in Store Design. *Journal of Retailing*, 59 (1), 21-45.
- Belizzi, J. A. and R. E. Hite 1992. Environmental Color, Consumer Feelings and Purchase Likelihood. *Psychology & Marketing*, 9 (5), 347-363.
- Berger, A. A. 2000. Media and Communication Research Methods. An Introduction to Qualitative and Quantitative Approaches. California: Sage Publications.
- Berger, C. R. and S. H. Chaffee 1987. The Study of Communication as a Science. In: Berger C. R. and S. H. Chaffee (eds.). *Handbook of Communication Science*, New Delhi: Sage Publication, Inc., 15-19.
- Berlo, D. K. 1960. The Process of Communication. An Introduction to Theory and Practice. New York: Holt, Rinehart and Winston, Inc.
- Bettinghaus, E. P. 1968. Persuasive Communication. San Francisco: Rinehart Press.
- Bettman, J. R. 1979. An Information Processing Theory of Consumer Choice. Massachusetts: Reading.
- Bettman, J. R., Johnson, E. J., and J. W. Payne 1991. Consumer Decision-Making. In: Robertson, T. S. and H. H. Kassarian (eds.). *Handbook of Consumer Behavior*. New Jersey: Prentice-Hall Inc., 50-84.
- Bettman, J. R., Luce, M. F., and J. W. Payne 1998. Constructive Consumer Choice Processes. *Journal of Consumer Research*, 25 (Dec), 187-217.
- Birren, F. 1945. Selling with Color. 1<sup>st</sup> ed. New York: McGraw-Hill Book Company, Inc.
- Birren, F. 1956. Selling Color to People. New York: University Books, Inc.
- Birren, F. 1983. Color and Human Response. *Color Research and Application*, 8 (2), 75-81.
- Bloch, P. H. 1995. Seeking the Ideal Form: Product Design and Consumer Response. *Journal of Marketing*, 59 (July), 16-29.
- Bone, P. F. and P. S. Ellen 1992. The Generation and Consequences of Communication-Evoked Imagery. *Journal of Consumer Research*, 19 (1), 93-104.
- Bone, P. F. and R. J. Corey 2000. Packaging Ethics: Perceptual Differences among Packaging Professionals, Brand Managers and Ethically-interested Consumers. *Journal of Business Ethics*, 24, 199-213.
- Brown, A. M. 1998. Let Us Entertain You. *Psychology Today*, 31 (4), 20.
- Burrell, G. and G. Morgan 1987. Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life. Aldershot: Gower.
- Caivano, J. L. 1998. Color and Semiotics: A Two-Way Street. *Color Research and Application*, 23 (6), 390-401.
- Caudill, D. W. 1986. Color Management: A Non-Verbal Communication Tool. *Journal of System Management*, Jan, 37-40.

- Chamblée, R. and D. Sandler 1992. Business-To-Business Advertising: Which Layout Style Works Best? *Journal of Advertising Research*, 32 (6), 39-46.
- Chattopadhyay, A., Gorn, G. J., and T. Yi 1994. Background Color in Advertising. In: Bloemer J., Lemmink, J. and H. Kasper (eds.). *Marketing: Its Dynamics and Challenges*, Provo (UT). Association for Consumer Research, 21, 1245-1249.
- Child, I. L., Hansen, J. A., and F. W. Hornbeck 1963. Age and Sex Differences in Children's Color Preferences. *Child Development*, 39 (1), 237-247.
- Childers, T. L. and M. J. Houston 1984. Conditions for a Picture-Superiority Effect on Consumer Memory. *Journal of Consumer Research*, 11 (2), 643-654.
- Choungourian, A. 1967. Introversion - Extroversion and Color Preferences. *Journal of Projective Techniques*, 31 (4), 92-94.
- Cleveland, C. E. 1986. Semiotics: Determining What the Advertising Message Means to the Audience. In: Olson J. and K. Sentis (eds.). *Advertising and Consumer Psychology*, New York: Praeger Publishers.
- Coffey, P. and A. Atkinson 1996. Making Sense of Qualitative Data: Complementary Research Strategies. California: Sage Publications, Inc.
- Connolly, A. and L. Davison 1996. How does Design Affect Decisions at Point of Sale? *The Journal of Brand Management*, (2), 100-107.
- Cooper, H. M. 1989. Integrating Research. A Guide for Literature Reviews. 2<sup>nd</sup> ed. California: Sage Publications, Inc.
- Coupey, E., Irwin, J. R., and J. W. Payne 1998. Product Category Familiarity and Preference Construction. *Journal of Consumer Research*, 24 (4), 459-468.
- Dance, F. E. X. and C. E. Larson 1976. The Functions of Human Communication. A Theoretical Approach, New York: Holt, Rinehart and Winston, Inc.
- Danger, E. P. 1987a. Selecting Colour for Packaging. Vermont: Gower Publishing Company.
- Danger, E. P. 1987b. The Colour Handbook. How to Use Colour in Commerce and Industry. Vermont: Gower Publishing Company.
- Dano, F. 1995. Packaging: une Approche Sémiotique. *Recherche et Applications en Marketing*, XI (1/96), 23-35.
- DeLozier, M. W. 1976. The Marketing Communication Process. New York: McGraw-Hill, Inc.
- De Saussure, F. 1957. Course in General Linguistics. In: Bally, C. and A. Sechehaye (eds.). London: Philosophical Library, Inc.
- Denzin, N. K. and Y. S. Lincoln 2000. Introduction: The Discipline and Practice of Qualitative Research. 2<sup>nd</sup> ed. In: Denzin, N. K. and Y. S. Lincoln (eds.). *Handbook of Qualitative Research*. California: Sage Publications, 1-28.
- Dingena, M. 1994. The Creation of Meaning in Advertising. Interaction of Figurative Advertising and Individual Differences in Processing Styles. Doctoral Dissertation, Tinbergen Institute Research Series, No. 62, Amsterdam: Thesis Publisher.
- Dubois, A. and L.-E. Gadde 2002. Systematic Combining: an Abductive Approach to Case Research. *Journal of Business Research*, 55 (7), 553-560.

- Duncan, T. and S. E. Moriarty 1998. A Communication-Based Marketing Model for Managing Relationships. *Journal of Marketing*, 62 (Apr), 1-13.
- Eckman, M. and J. Wagner 1995. Aesthetics Aspects of the Consumption of Fashion Design: The Conceptual and Empirical Challenge. In: Kardes, F. R. and M. Suja (eds.). *Advances in Consumer Research*, Provo (UT): Association for Consumer Research, 22, 646-649.
- Eco, U. 1977. *A Theory of Semiotics*. London: The MacMillian Press, Ltd.
- Ehrenberg, A., Barnard, N. and J. Scriven 1997. Differentiation or Salience. *Journal of Advertising Research*, 37 (6), 7-14.
- Elliott, M. T. and P. S. Speck 1998. Consumer Perceptions of Advertising Clutter and its Impact across Various Media. *Journal of Advertising Research*, 38 (1), 29-41.
- Erickson, G. 1995. New Package Makes a New Product Complete. *Marketing News*, 29 (10), 10.
- Evans, M. J., Moutinho, L., and W. F. V. Raaij 1996. *Applied Consumer Behaviour*. Harlow: Addison-Wesley Publishing Company.
- Eysneck, H. J. 1941. A Critical and Experimental Study of Colour Preferences. *American Journal of Psychology*, 54, 385-394.
- Finn, A. 1988. Print Ad Recognition Readership Scores: An Information Processing Perspective. *Journal of Marketing Research*, 25 (2), 168-177.
- Finne, Å. (2004): Hur den Aktiva Kunden Konstruerar Budskap – ett Synsätt inom Relationskommunikation. Doctoral Dissertation, Publications of the Swedish School of Economics and Business Administration, No. 137, Helsingfors: Ekonomi och Samhälle.
- Fiske, J. 1990. *Introduction to Communication Studies*. 2<sup>nd</sup> ed., New York: Methuan & Co.
- Fletcher, K. 1995. Designers Briefs. *Marketing*, (May 18), 27.
- Fouquier, E. 1990. A Short History of Applied Semiotics in France. *Marketing Signs*, (7), 1-9.
- Fromkin, V. and R. Rodman 1993. *An introduction to Language*. 5<sup>th</sup> ed. Fort Worth (Tex.): Harcourt Brace Jovanovich.
- Gabbott, M. and G. Hogg 2000. An Empirical Investigation of the Impact of Non-Verbal Communication on Service Evaluation. *European Journal of Marketing*, 34 (3/4), 384-398.
- Gahmberg, H. 1986. Symbols and Values of Strategic Managers. A Semiotic Approach. Doctoral Dissertation, Publications of the Helsinki School of Economics, Series A-47: 1986, Helsinki.
- Garbarino, E. C. and J. A. Edell 1997. Cognitive Effort, Affect, and Choice. *Journal of Consumer Research*, 24 (Sep), 147-158.
- Garber, L. L. 1995. The Package Appearance in Choice. In: Kardes F. R. and M. Suja (eds.). *Advances in Consumer Research*, Provo (UT): Association for Consumer Research, 22, 653-660.
- Garber, L. L. Jr, Burke R.R., and J. M. Jones 2000a. The Role of Package Color in Consumer Purchase Consideration and Choice. Marketing Science Institute. Working Paper, Report No 00-104.
- Garber, L. L. Jr., Hyatt, E. M., and R. G. Starr Jr. 2000b. The Effects of Food Color on Perceived Flavor. *Journal of Marketing Theory and Practice*, (Fall), 59-72.

- Gardner, B. B. 1967. The Package as a Communication. In: Moyer M. S. and R. E. Vosburgh (eds.). *Marketing for Tomorrow... Today*, Chicago: American Marketing Association, 25, 117-118.
- Garth, T. R. and E. P. Porter 1934. The Colour Preferences of 1032 Young Children. *American Journal of Psychology*, 46, 448-451.
- Gayeski, D. M. 1993. Communication in Management. Stoneham, MA: Butterworth-Heinemann, Reed Publishing Inc.
- Gershman, M. 1987. Packaging's Role in Remarketing. *Management Review*, 76 (5), 41-45.
- Glass, G. V, McGaw, M., and M. L. Smith 1981. Meta-Analysis in Social Research. Beverly Hills: Sage publications, Inc.
- Goldberg, M. E., Liefeld, J., Madill J., and H. Vredenburg 1999. The Effect of Plain Packaging on Response to Health Warnings. *American Journal of Public Health*, 89 (9), 1434-1435.
- Gordon, A., Finlay, K., and T. Watts 1994. The Psychological Effects of Colour in Consumer Product Packaging. *Canadian Journal of Marketing Research*, 13, 3-11.
- Gorn, G. J. and M. E. Goldberg 1982. Behavioral Evidence of the Effects of Televised Food Messages on Children. *Journal of Consumer Research*, 9 (2), 200-205.
- Gorn, G., Chattopadhyay, A., Sengupta, J., and S. Tripathi 2004. Waiting for the Web: How Screen Color Affects Time perception. *Journal of Marketing*, 41 (2), 215-225.
- Gorn, G., Chattopadhyay, A., Yi, T., and D. W. Dahl 1997. Effects of Color as an Executonal Cue in Advertising: They're in the Shade. *Management Science*, 43 (10), 1387-1400.
- Gottheil, J. 2003. It's Time to Wake Up and Smell Corrugate. *Canadian Grocer*, 117 (2), 43.
- Granger, C. W. J. and A. Billson 1972. Consumers' Attitudes toward Package Size and Price. *Journal of Marketing Research*, 9 (Aug), 239-248.
- Green, P. E. and V. Srinivasan 1990. Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice. *Journal of Marketing*, 54 (4), 3-19.
- Greer, T. V. and R. Lohtia 1994. Effects of Source and Paper Color on Response Rates in Mail Surveys. *Industrial Marketing Management*, 23 (1), 47-54
- Grier, S. A. and A. M. Brumbaugh 1999. Noticing Cultural Differences: Ad Meanings Created by Target and Non-Target Markets. *Journal of Advertising*, 28 (1), 79-93.
- Grimes, A. and I. Doole 1998. Exploring the Relationship Between Colour and International Branding: A Cross-Cultural Comparison of the UK and Taiwan. *Journal of Marketing Management*, (4), 799-817.
- Grossman, R. P. and J. Z. Wisenblit 1999. What We Know About Color Choices: *Journal of Marketing Practice: Applied Marketing Science*, 5 (3), 78-88.
- Grozier, W. R. 1999. The Meanings of Colour: Preferences among Hues. *Pigment & Resin Technology*, 28 (1), 6-14.
- Grønhaug, K., Kvitastein, O., and S. Gronmo 1991. Factors Moderating Advertising Effectiveness as Reflected in 333 Tested Advertisements. *Journal of Advertising Research*, 31 (5), 42-50.
- Grönroos, C. 2000. Creating a Relationship Dialogue: Communication, Interaction and Value. *The Marketing Review*, 1, 5-14.

- Guba, E. G. and Y. S. Lincoln 1994. Competing Paradigms in Qualitative Research. In: Denzin, N. K. and Y. S. Lincoln (eds.). *Handbook of Qualitative Research*. California: Sage Publications, 105-117.
- Guilford, J. P. 1934. The Affective Value of Color as a Function of Hue, Tint and Chroma. *Journal of Experimental Psychology*, 17, 342-370.
- Gummesson, E. 1988. *Qualitative Methods in Management Research*. Bromley: Chartwell-Bratt Ltd.
- Gummesson, E. 2000. *Qualitative Methods in Management Research*. 2<sup>nd</sup> ed, California: Sage Publications, Inc.
- Gustafsson, A., Ekdahl F., and B. Bergman 1999. Conjoint Analysis: a Useful Tool in the Design Process. *Total Quality Management*, 10 (3), 327-343.
- Gutman, J. 1982. A Means-End-Chain Model Based on Consumer Categorization Processes. *Journal of Marketing*, 46 (Spring), 60-72.
- Haapakoski, K. 2000. Lääkkeiden Myynti Halutaan Vapaammaksi. *Talouselähti*, (Oct.28), 6-7.
- Hair, J. F. Jr, Anderson, R. E., Tatham, R. L., and W. C. Black 1998. *Multivariate Data Analysis with Readings*. 5<sup>th</sup> ed. New Jersey: Prentice Hall, Inc.
- Hakim, C. 1987. *Research Design. Strategies and Choices in the Design of Social Research*. London: Allen & Unwin.
- Haley, R. I., Richardson, J., and B. M. Baldwin 1984. The Effects of Nonverbal Communications in Television Advertising. *Journal of Advertising Research*, 24 (4), 11-18.
- Hall, J. 1993. Brand Development: How Design Can Add Value. *The Journal of Brand Management*, 1 (2), 94-100.
- Hanneman, G. J. and W. J. McEwen 1975. *Communication and Behavior*. Massachusetts: Addison-Wesley Publishing Company, Inc.
- Hayhurst, L. J. 1965. Management's Attitudes on Packaging. In: Gardner, B. G. (ed.). *New Directions in Marketing : Proceedings*, 48<sup>th</sup> National Conference, Chicago: American Marketing Association, 215-220.
- Heath, R. 1999. 'Just Popping Down to the Shops for a Packet of Image Statements': A New Theory of How Consumers Perceive Brands. *Market Research Society. Journal of the Market Research Society*, 41 (2), 153-169.
- Heckler, S. E. and T. L. Childers 1992. The Role of Expectancy and Relevancy in Memory for Verbal and Visual Information: What is Incongruence. *Journal of Consumer Research*, 18 (3), 475-492.
- Hedvall, M-B. 1994. *The Process of Self-Care Decision-making*. Doctoral Dissertation, Publications of the Swedish School of Economics and Business Administration, No. 57, Helsingfors: Ekonomi och Samhälle.
- Heilbrunn, B. 1997. Representation and Legitimacy: A Semiotic Approach to the Logo. In: Nöth W. (ed.). *Semiotics of the Media. State of the Art, Projects, and Perspective*. Berlin: Walter de Gruyter & Co, 175-189.
- Hine, T. 1995. *The Total Package. The Evolution and Secret Meanings of Boxes, Bottles, Cans and Tubes*. Toronto: Little, Brown & Company Ltd.

- Hjelmslev, L. (1970). *Language; an introduction*. Madison: University of Wisconsin Press.
- Holland, J. and J. W. Gentry 1999. Ethnic Consumer Reaction to Targeted Marketing: A Theory of Intercultural Accommodation. *Journal of Advertising Research*, 28 (1), 65-77.
- Hoolbrook, M. B. 1987. The Study of Signs in Consumer Esthetics: An Egocentric Review. In: T. A. Sebeok (ed.). *Marketing and Semiotics. New Directions in the Study of Signs for Sale*, Berlin: Mouton de Gruyter, 73-122.
- Homer, P. M. and S. G. Gauntt 1992. The Role of Imagery in the Processing of Visual and Verbal Package Information. *Journal of Mental Imagery*, 16 (3&4), 123-144.
- Hoshino, K. 1987. Semiotic Marketing and Product Conceptualization. In: T. A. Sebeok (ed.). *Marketing and Semiotics. New Directions in the Study of Signs for Sale*, Berlin: Mouton de Gruyter, 41-56.
- Houston, M. J., Childers, T. L., and S. E. Heckler 1987. Picture-Word Consistency and the Elaborative Processing of Advertisements. *Journal of Marketing Research*, 24 (4), 359-369.
- Hoyer, W. D., Leone, R. P., and C. J. Cobb 1986. The Effect of Color Versus Black and White Advertising Formats on Affective Ratings and Perceptions of Product Quality. In: Lutz, R. J. (ed.). *Advances in Consumer Research*, New Orleans (UT): Association for Consumer Research, 13, 667.
- Huang, L-H 1993. Color in U.S. and Taiwanese Industrial Advertising. *Industrial Marketing Management*, 22, 195-198.
- Hudson, L. and J. L. Ozanne 1988. Alternative Ways of Seeking Knowledge in Consumer Research. *Journal of Consumer Research*, 14 (Mar), 508-521.
- Hutchinson, W. J., Raman, K., and M. K. Mantrala 1994. Finding Choice Alternatives in Memory: Probability Models of Brands Name Recall. *Journal of Marketing Research*, 31 (Nov), 441-461.
- Isoline, C. and A. Macomber 2002. Good Packaging does a Multifaceted Job. *Marketing News*, 36 (23), 14.
- Itten, J. 1970. *The Elements of Color*. In: Faber Birren (ed.). New York: Van Nostrand Reinhold Company.
- Jacobs, L. K., Worthley, R., and K-I Ghymn 1991. Cross-Cultural Colour Comparisons: Global Marketers Beware. *International Marketing Review*, 8 (3), 21-30.
- Jaeger, S. R., Hedderley, D., and H. J. H. MacFie 2001. Methodological Issues in Conjoint Analysis: A Case Study. *European Journal of Marketing*, 35 (11/12), 1217-1237.
- Johansson, S. G. 1990. Semiotik som ett Verktyg för Reklam och Marknadsföring. *MTC-Kontakten*, (Vintern 1989-90), 12-15.
- Johnson, M. D. and D. R. Lehmann 1997. Consumer Experiences and Consideration Sets for Brands and Product Categories. In: Brucks, M. and D. MacInnis (eds.). *Advances in Consumer Research*, Provo (UT): Association for Consumer Research, 24, 295-301.
- Kahn, B. E. 1998. Dynamic Relationships with Customers: High-Variety Strategies. *Journal of Academy of Marketing Science*, 26 (1), 45-53.
- Kahneman, D. 1973. *Attention and Effort*. Englewood Cliffs. New Jersey: Prentice-Hall Inc.



- Karp, E. M. and H. B. Karp 1988. Color Associations of Male and Female Fourth-Grade School Children. *The Journal of Psychology*, 122 (4), 383-388.
- Kaufman-Scarborough, C. 2001. Accessible Advertising for Visually-Disabled Persons: The Case of Color-Deficient Consumers. *The Journal Consumer Marketing*, 18 (4/5), 303-318.
- Kauppinen, H. 1994. Tecknets Funktion vid Mänsklig Kommunikation – Studie av Röda Kors-Symbolen och de Tankar den Väcker. Unpublished master's thesis, Helsingfors: Swedish School of Economics and Business Administration.
- Kauppinen, H. 2001. Colours as Non-verbal Signs on Packages. A Semiotic Approach, Unpublished licentiate thesis. Helsingfors: Swedish School of Economics and Business Administration.
- Kawama, T. 1985. An Analysis of the Decoding Process of International Signs. *Semiotica*, 57 (1/2), 101-115.
- Kawama, T. 1987. A Semiotic Approach to the Design Process. In: Sebeok, T. A. (ed.). *Marketing and Semiotics. New Directions in the Study of Signs for Sale*, Berlin: Mouton de Gruyter, 57-72.
- Keegan, W., Moriarty, S., and T. Duncan 1992. Marketing, New Jersey: Englewood Cliffs.
- Kimle, P. A. and A. M. Fiore 1992. Fashion Advertisements: A Comparison of Viewers' Perceptual and Affective Responses to Illustrated and Photographed Stimuli. *Perceptual and Motor Skills*, 75 (3) (Part 2), 1083-1091.
- Kirmani, A. 1997. Advertising Repetition as a Signal of Quality: It's Advertised So Much, Something Must Be Wrong. *Journal of Advertising*, 26 (3), 77-86.
- Klapisch, C. 1995. Feminine Identity and Mass Communication: A Semiotic Analysis of Feminine Products and Packaging. *Semiotica*, 104 (1/2), 99-117.
- Kojina, M., Hoken, J., and K. Takahashi 1986. The Role of Color and Pattern as Mediators of Product Selection. *Journal of Human Ergology*, 15, 13-25.
- Korgaonkar, P. K., Karson, E. J., and I. Akaah 1997. Direct Marketing Advertising: The Assents, the Dissents, and the Ambivalent. *Journal of Advertising Research*, 37 (5), 41-55.
- Kotler, P. 1989. Marketing Management: Analysis, Planning and Control. 5th ed., Englewood Cliffs, New Jersey: Prentice-Hall, Inc.
- Kotler, P. and A. G. Rath 1984. Design: A Powerful but Neglected Strategic Tool. *The Journal of Business Strategy*, 5 (2), 16-21.
- Krone, K. J., Jablin, F. M., and L. L. Putnam 1987. Communication theory and organizational communication: Multiple perspectives. In Jablin, F. M., Putnam, L. L., Roberts, K. H., and L. W. Porter (eds.). *Handbook of organizational communication: an interdisciplinary perspective*, Newbury Park, CA: Sage, 18-40.
- Kwallek, N., Lewis, C. M., and A. S. Robbins 1988. Effects of Office Interior Workers' Mood and Productivity. *Perceptual and Motor Skills*, 66 (1-3), 123-128.
- Lavidge, R. J. 1999. "Mass Customization" is not an Oxy-Moron. *Journal of Advertising Research*, 39 (4), 70-72.
- Lee, S. and J. H. Jr. Barnes 1990. Using Color Preferences in Magazine Advertising. *Journal of Advertising Research*, 29 (6), 25-30.

- Leppänen, A. 1992. Pakkaus ja Markkinointitutkimus. Suunnittelun monet Paineet. *Pakkaus*, (7-8), 14-16.
- Lewis, R. 1994. Värit ja Edgar Cayce (orig.: Color and Edgar Cayce Readings). Espoo: Biokustannus Oy.
- Lincoln, C. W. 1965. Total Brand Identification through Packaging. In: Gardner, B. G. (ed.). *New Directions in Marketing: Proceedings*, 48<sup>th</sup> National Conference, Chicago: American Marketing Association, 147-148.
- Lincoln, Y. S. and E. G. Guba 2000. Paradigmatic Controversies, Contradictions, and Emerging Confluences. 2<sup>nd</sup> ed. In: Denzin, N. K. and Y. S. Lincoln (eds.). *Handbook of Qualitative Research*. California: Sage Publications, 163-188.
- Lindberg-Repo, K. 2001. Customer Relationship Communication – Analysing Communication from a Value Generating perspective. Doctoral Dissertation, Publications of the Swedish School of Economics and Business Administration, No. 99, Helsingfors: Ekonomi och Samhälle.
- Lynch, J. G. Jr., Marmorstein, H., and M. F. Weigold 1988. Choices from Sets Including Remembered Brands: Use of Recalled Attributes and Prior Overall Evaluations. *Journal of Consumer Research*, 15 (Sep), 169-184.
- MacInnis, D. J. and L. L. Price 1987. The Role of Imagery in Information Process: Review and Extension. *Journal of Consumer Research*, 13 (4), 463-491.
- Madden, T. J., Hewett, K., and M.S. Roth 2000. Managing Images in Different Cultures: A Cross-National Study of Color Meaning and Preferences, *Journal of International Marketing*, 8 (4), 90-107.
- Mahatoo, W. H. 1985. The Dynamics of Consumer Behavior. Toronto: John Wiley & Sons, Inc.
- Mandel, N. and E. J. Johnson 2002. When Web Pages Influence Choice: Effects of Visual Primes on Experts and Novices. *Journal of Consumer Research*, 29 (2), 235-245.
- Mantel, S. P. and F. R. Kardes 1999. The Role of Direction of Comparison, Attribute-Based Processing, and Attitude-Based Processing in Consumer Preference. *Journal of Consumer Research*, 25 (4), 335-352.
- Marshall, P. and E. T. Bradlow 2002. A Unified Approach to Conjoint Models. *Journal of American Statistical Association*, 97 (459), 674-682.
- McCullough S. A. 2002. A User's Guide to Conjoint Analysis. *Marketing Research*, 14 (2), 18-23.
- McDaniel, C. and R. C. Baker 1977. Convenience Food Packaging and the Perception of Product Quality. *Journal of Marketing*, 41 (4), 57-58.
- McDaniel Jr., C. and R. Gates 1996. Contemporary Marketing Research. St. Paul, MN: West Publications.
- McManus, I. C., Jones, A. L., and J. Cottrell 1981. The Aesthetics of Color. *Perception*, 10 (6), 651-666.
- McQuail, D. 1975. Communication - Aspects of Modern Sociology: Social Processes. New York: Longman, Inc.
- McQuarrie, E. F. and D. G. Mick (1996): Figures of Rhetoric in Advertising Language. *Journal of Consumer Research*, Vol. 22, Mar, 424-438.

- Meyers-Levy, J. and L. A. Peracchio 1995. Understanding the Effects of Color: How the Correspondence Between Available and Required Resources Affects Attitudes. *Journal of Consumer Research*, 22 (Sep), 121-138.
- Mick, D. G. 1986. Consumer Research and Semiotics: Exploring the Morphology of Signs, Symbols and Significance. *Journal of Consumer Research*, 13 (Sep), 196-213.
- Mick, D. G. 1988. Contributions to the Semiotic of Marketing and Consumer Behavior 1985-88. In: Sebeok T. A. and J. Umiker-Sebeok (eds.). *The Semiotic Web 1987*, Berlin: Mouton de Gruyter, 535-584.
- Mick, D. G., Burroughs, J. E., Hetzel, P., and M. Y. Brannen 1999. A Global Review of Semiotic Consumer Research: Progress, Problems, and Prospects. Working Paper, McIntire School of Commerce, University of Virginia, USA, 1-96.
- Middlestadt, S. E. 1990. The Effect of Background and Ambient Color on Product Attitudes and Beliefs. In: Goldberg, M., Gorn, G. and R. W. Pollay (eds.). *Advances in Consumer Research*, New Orleans (UT): Association for Consumer Research, 17. 244-249.
- Miles, M. B. and A. M. Huberman 1994. Qualitative Data Analysis. An Expanded Sourcebook, 2<sup>nd</sup> ed. California: Sage Publications, Inc.
- Miniard, P. W., Bhatla, S., Lord, K. R., Dickson, P. R., and H. R. Unnava 1991. Picture-based Persuasion Processes and the Moderating Role of Involvement. *Journal of Consumer Research*, 18 (1), 92-107.
- Mitchell, A. A. 1986. The Effect of Verbal and Visual Components on Advertisements on Brand Attitudes and Attitude Toward the Advertisement. *Journal of Consumer Research*, 13 (6), 12-24.
- Monteiro, D. M. de S. and M. R. V. Lucas 2001. Conjoint Conjoint Measurement of Preferences for Traditional Cheeses in Lisbon. *British Food Journal*, 103 (6), 414-424.
- Moriarty, S., Cohen, S., Dotson, L., Durchsprung, L., Hebert, J., Kurtz, M. Teufel, N., S., Taubler, D., and K. Zoellner 1996. Relationship Links and IMC. *Integrated Marketing Communications Research Journal*, 1 (1), 3-10.
- Morris, C. 1938. Foundations of the Theory of Signs. Chicago (Ill.): University of Chicago Press.
- Morris, C. 1946. Signs, Language and Behavior. New York: Prentice-Hall, Inc.
- Murphy, M., Cowan C., Henchion M., and S. O'Reilly 2000. Irish Consumer Preferences for Honey: A Conjoint Approach. *British Food Journal*, 102 (8), 585-597.
- Murray, D. C. and H. L. Deabler 1957. Colors and Mood-Tones. *Journal of Applied Psychology*, 41 (5), 279-283.
- Nakshian, J. 1964. The Effects of Red and Green Surroundings on Behavior. *The Journal of General Psychology*, 70, 143-161.
- Nedungadi, P. 1990. Recall and Consumer Considerations Sets: Influencing Choice without Altering Brand Evaluation. *Journal of Consumer Research*, 17 (Dec), 263-276.
- Ness, M. R. and H. Gerhardt 1994. Consumer Preferences for Quality and Freshness Attributes of Eggs. *British Food Journal*, 96 (3), 26-34.

- Nordman, C. 2004. Understanding Customer Loyalty and Disloyalty – The Effect of Loyalty-Supporting and -Repressing Factors. Doctoral Dissertation, Publications of the Swedish School of Economics and Business Administration, No. 125, Helsingfors: Ekonomi och Samhälle.
- Norman, R. D. and W. A. Scott 1952. Color and Affect: A Review and Semantic Evaluation. *The Journal of General Psychology*, 46, 185-223.
- Nöth, W. 1990. Handbook of Semiotics. Bloomington, IN: Indiana University Press.
- Oliver, G. 1996. Beware using Color for its Aesthetics Value. *Journal of Health Care Marketing*, 16 (3), 5.
- Park, W. C., Iyer, E. S., and D. C. Smith 1989. The Effects of Situational Factors on In-Store Grocery Shopping Behavior: The Role of Store Environment and Time Available for Shopping. *Journal of Consumer Research*, 15 (Mar), 422-433.
- Peirce, C. S. 1998a. The essential Peirce. Selected Philosophical Writings. Houser, N. and C. Kloesel (eds.). Volume 2 (1867-1893), Bloomington: Indiana University Press.
- Peirce, C. S. 1998b. The essential Peirce. Selected Philosophical Writings. Peirce Edition Project (eds.). Volume 2 (1893-1913), Bloomington: Indiana University Press.
- Peters, M. 1994. Good Packaging Gets Through to the Fickle Buyer. *Marketing*, (Jan.20), 10.
- Peterson, R. A. 1977. Consumer Perceptions as a Function of Product Color, Price and Nutrition Labelling. In: Perreault, W. D. Jr. (ed.). *Advances in Consumer Research*, Atlanta: Association for Consumer Research, 4, 61-63.
- Petty, R. E. and D. W. Schumann 1983. Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement. *Journal of Consumer Research*, 10 (2), 135-146.
- Petty, R. E., Unnava, R. H., and A. J. Strathman 1991. Theories of Attitude Change. In: Robertson, T. S. and H. H. Kassarian (eds.). *The Handbook of Consumer Behavior*. New Jersey: Prentice-Hal, Englewood Cliffs.
- Pham, M. T. and G. V. Johar 1997. Contingent Processes of Source Identification. *Journal of Consumer Research*, 24 (3), 249-265.
- Pieters, R. and L. Warlop 1999. Visual Attention during Brand Choice: The Impact of Time Pressure and Task Motivation. *International Journal of Research in Marketing*, 16 (1), 1-16.
- Pinson, C. 1988. Editorial. *International Journal of Research in Marketing*, 4 (3), 167-171.
- Plasschaert, J. and M. W. Floet 1995. The Meaning of Colour on Packaging – A Methodology for Qualitative Research Using Semiotic Principles and Computer Image Manipulation. In: *Making the Decision*. 48<sup>th</sup> ESOMAR Marketing Research Congress, The Hague, (17<sup>th</sup>-20<sup>th</sup> Sept), 217-232.
- Polonsky, M. J., Bailey, J., Basche, C., Jepson, C., and L. Neath 1998. Communicating Environmental Information: Are Marketing Claims on Packaging Misleading. *Journal of Business Ethics*, 17, 281-294.
- Punch, K. F. 1998. Introduction to Social Research. Quantitative & Qualitative Approaches. London: SAGE Publications Inc.
- Rantanen, S. 1992. Pakkaus on Silmäruokaa. *Osuustoimintalehti*, (2).

- Rao, A. R. and K. B. Monroe 1988. The Moderating Effect of Prior Knowledge on Cue Utilization in Product Evaluation. *Journal of Consumer Research*, 15 (Sep), 253-264.
- Ratner, R. K. and B. E. Kahn 2002. The Impact of Private Versus Public Consumption on Variety-Seeking Behavior. *Journal of Consumer Research*, 29 (2), 246-257.
- Ratneshwar, S. and S. Chaiken 1991. Comprehension's Role in Persuasion: The Case of its Moderating Effect on the Persuasive Impact of Source Cues. *Journal of Consumer Research*, 18 (1), 52-62.
- Ratneshwar and Shocker 1991. Substitution in Use and the Role of Usage Context in Product Category Structures. *Journal of Marketing Research*, 28 (3), 281-295.
- Ratneshwar, S., Pechmann, C. and A. Shocker 1996. Goal-Derived Categories and the Antecedent of Across-Category Consideration. *Journal of Consumer Research*, 23 (3), 240-250.
- Rettie, R. and C. Brewer 2000. The Verbal and Visual Components of Package Design. *The Journal of Brand Management*, 9 (1), 56-70.
- Reynolds, T. J. and J. Gutman 1984. Advertising Is Image Management. *Journal of Advertising Research*, (Feb/Mar), 27-37.
- Reynolds, T. J. and J. Gutman 1988. Laddering Theory, Method, Analysis and Interpretation. *Journal of Advertising Research*, (Feb/Mar), 11-31.
- Reynolds, T. J. and D. B. Whitlark 1995. Applying Laddering Data to Communications Strategy and Advertising Practice. *Journal of Advertising Research*, 35 (4), 9-17.
- Rigaux-Bricmont, B. 1981. Influences of Brand Name and Packaging on Perceived Quality. In: Mitchell, A. (eds.). *Advances in Consumer Research*, St. Louis: Association for Consumer Research, 9, 472-477.
- Rossiter, J. R. and L. Percy 1978. Visual Imaging Ability as a Mediator of Advertising Response. In: Hunt, K. H. (ed.). *Advances in Consumer Research*, Ann Arbor: Association for Consumer Research, 5, 621-629.
- Rotschild, M. L. 1987. Marketing Communications. From Fundamentals to Strategies. Toronto: D. C. Heath and Company.
- Saito, M. 1996. Comparative Studies on Color Preferences in Japan and the Asian Regions, with Special Emphasis on the Preferences for White. *Color Research and Application*, 21 (1), 35-50.
- Saito, T. 1983. Latent Spaces in Color Preference With and Without a Context: Using the Shape of an Automobile as the Context. *Color Research and Application*, 8 (2), 101-113.
- Schindler, P. S. 1986. Color and Contrast in Magazine Advertising. *Psychology & Marketing*, 3 (2), 69-78.
- Schoorman, J. P. L. and H. S. J. Robben 1997. The Effect of New Package Design on Product Attention, Categorization and Evaluation. *Journal of Economic Psychology*, 18 (2-3), 271-287.
- Schwandt, T. 2000. Three Epistemological Stances for Qualitative Inquiry: Interpretivism, Hermeneutics, and Social Constructionism. 2<sup>nd</sup> ed. In: Denzin, N. K. and Y. S. Lincoln (eds.). *Handbook of Qualitative Research*. California: Sage Publications, 189-214.
- Schreiber, E. 1994. Retail Trends Shorten Life of Package Design. *Marketing News*, 28 (25), 7.

- Sebeok, T. A. 1976. Contributions to the Doctrine of Signs. Bloomington: Indiana University.
- Sebeok, T. A. 1986. Pandora's Box. "How and Why to Communicate 10,000 Years into Future". In: Blonsky, M. (ed.). *On Sign: A Semiotic Reader*, Padstow: T. J. Press, 448-466.
- Sebeok, T. A. 1997. Index to Semiotica. Vol. 1-100, (1969-1994). Berlin: Walter de Gruyter & Co.
- Sebeok, T. A. 1999. Finderlist for Semiotica. Vol. 101-125, (1994-1999). 125 (4), Berlin: Walter de Gruyter & Co.
- Shapiro, S., MacInnis, D. J. and S. E. Heckler 1997. The Effects of Incidental Ad Exposure on the Formation of Consideration Sets. *Journal of Consumer Research*, 24 (June), 94-104.
- Shen, T. H. 1937. The Color Preference of 1368 Chinese Students with Special Reference to the Most Preferred Color. *Journal of Social Psychology*, 8, 185-204.
- Shermach, K. 1996. Small Soda Brands use Packaging for Marketing Fizz. *Marketing News*, 30 (25), 15.
- Sherry, J. F. Jr and E. G. Camargo 1987. "May Your Life Be Marvellous:" English Language Labelling and the Semiotics of Japanese Promotion. *Journal of Consumer Research*, 14 (Sep), 174-188.
- Simonson, A. 1997. Affecting Consumers through Identity and Design. In: Brucks, M. and D. MacInnis (eds.). *Advances in Consumer Research*, Provo (UT): Association for Consumer Research, 24, 64.
- Sivik, L. 1970. Om Färgers Betydelser. *Fackskrift, Svenskt Färgcentrum*, No. 9.
- Sivik, L. and A. Hård 1994. Some Reflections on Studying Colour Combinations. *Color Research and Application*, 19 (4), 286-295.
- Solomon, M. R. 1986. The Missing Link: Surrogate Consumers in the Marketing Chain. *Journal of Marketing*, 50 (4), 208-218.
- Solomon, O. 1988. Semiotics and Marketing. New Directions in Industrial Design Applications. *International Journal of Research in Marketing*, 4, 201-215
- Sonnenberg, F. and T. Mitchell 1987. Marketing Communications: A Means to an End. *The Journal of Business Strategy*, 7 (4), 81-86
- Sorvali, I. 2000. Information Given on Bread Packages. *International Summer Institute for Semiotics and Structural Studies*. Imatra, Finland, 280-304.
- Sparkman, R. Jr. and L. M. Austin 1980. The Effect on Sales of Color in Newspaper Advertisements. *Journal of Advertising*, 9 (4), 39-42.
- Stone, N. J. and A. J. English 1998. Task Type, Posters, and Workspace Color on Mood, Satisfaction, and Performance. *Journal of Environmental Psychology*, 18, 175-185.
- Supphellen, M. 2000. Understanding Core Brand Equity: Guidelines for In-Depth Elicitation of Brand Associations. *International Journal of Market Research*, 42 (3), 319-339
- Taft, C. 1997. Color Meaning and Context: Comparison of Semantic Ratings of Colors on Samples and Objects. *Color Research and Application*, 22 (1), 40-50.
- Tarasti, E. 1990. Johdatusta Semiotiikkaan. Esseitä Taiteen ja Kulttuurin Merkkijärjestelmästä. Helsinki: Oy Gaudeamus Ab.

- Tashakkori, A. and C. Teddlie 1998. *Mixed Methodology. Combining Qualitative and Quantitative Approaches*. Thousand Oaks: Sage Publications, Inc.
- Tebelius, U. 1987. Om Vetenskapliga Förhållningssätt. In: Patel, R. and U. Tebelius (eds.). *Grundbok i forskningsmetodik*. Lund: Studentlitteratur, 24-40.
- Tobolski, F. 1994. Package Design requires research. *Marketing News*, 28 (12), 4.
- Tom, G. and A. Eves 1999. The use of Rhetorical Devices in Advertising. *Journal of Advertising Research*, 39 (4), 39-43.
- Trijp, H. C. M., Hoyer, W. D., and J. J. Inman 1996. Why Switch? Product Category-Level Explanations for True Variety-Seeking Behavior. *Journal of Marketing Research*, 33 (3), 281-292.
- Underwood, R. L. 1999. Construction of Brand Identity Through Packaging: A Qualitative Inquiry. In: Menon A. and A. Sharma (eds.). *Marketing Theory and Applications*, Illinois: American Marketing Association. 10 (Winter), 147-148.
- Underwood, R. L. and J. L. Ozanne 1998. Is Your Package an Effective Communicator? A Normative Framework for Increasing the Competence of Packaging. *Journal of Marketing Communication*, 4, 207-220.
- Underwood, R. L. Klein, N. M., and R. B. Burke 2001. Packaging Communication: Attentional Effects of Product Imagery. *The Journal of Product and Brand Management*, 10 (7), 1-19.
- Underwood, R. L. and N. M. Klein 2002. Packaging as Brand Communication: Effects of Product Pictures on Consumer Responses to the Package and Brand. *The Journal of Marketing*, 10 (4), 58-68.
- Vakratsas, D. and T. Ambler 1999. How Advertising Works: What Do We Really Know? *Journal of Marketing*, 63 (1), 26-43.
- Valdez, P. and A. Mehrabian 1994. Effects of Color on Emotions. *Journal of Experimental Psychology: General*, 123 (4), 394-409.
- Veryzer, R. W. Jr. 1993. Aesthetics Response and the Influence of Design Principles on Product Preferences. In: Rotschild, M. L. and L. McAlister (eds.). *Advances in Consumer Research*, Provo (UT): Association for Consumer Research, 20, 224-228.
- Veryzer, R. W. Jr. 1995a. Product Design, Aesthetics, and Consumer Research. In: Kardes F. R. and M. Sujan (eds.). *Advances in Consumer Research*, Provo (UT): Association for Consumer Research, 22, 640.
- Veryzer, R. W. Jr. 1995b. The Place of Product Design and Aesthetics in Consumer Research. In: Kardes F. R. and M. Sujan (eds.). *Advances in Consumer Research*, Provo (UT): Association for Consumer Research, 22, 641-645.
- Veryzer, R. W. Jr. and J. W. Hutchinson 1998. The Influence of Unity and Prototypicality on Aesthetics Responses to New Product Design. *Journal of Consumer Research*, 24, (Mar), 374-394.
- Vihma, S. 1992. Iconity and Other Signs in the Form of Design Products. In: S. Vihma (ed.). *Objects and Images. Studies in Design and Advertising*, Helsinki: Publication Series of the University of Industrial Arts Helsinki UIAH, A 12, 100-105.
- Vihma, S. 1995. Products as Representation – A Semiotic and Aesthetics Study of Design Products. Helsinki: Publication Series of the University of Art and Design Helsinki UIAH, A 12.

- Vriens, M., Loosschilder, G. H., Rosbergen, E., and D. R. Wittink, D. R.. 1998. Verbal versus Realistic Pictorial Representation in Conjoint Analysis with Design Attributes. *Journal of Product Innovation Management*, 15 (5), 455-467.
- Vuokko, P. 1992. Advertising Repetition Effects. Conceptual Framework and Field Study in Four Product Categories. Doctoral Dissertation, Publications of the Turku School of Economics and Business Administration, Series A-1: 1992, Turku.
- Wansink, B. 1996. Can Package Size Accelerate Usage Volume. *Journal of Marketing*, 60 (3), 1-14.
- Wedel, M., Vriens, M., Bijmolt, T. H. A., Krijnen, W., and P. S. H. Leeflang 1998. Assessing the Effects of Abstract Attributes and Brand Familiarity in Conjoint Choice Experiments. *International Journal of Research in Marketing*, 15 (1), 71-78.
- Wiegersma, S. and I. De Klerck 1984. The Blue Phenomenon is Red in the Netherlands. *Perceptual and Motor Skills*, 59, 790.
- Wiio, O. A. 1973. Kommunikation vad är det? En Grundbok om Information, Språk och Massmedier. Stockholm: Bokförlaget Natur och Kultur.
- Woods, W. A. 1981. Consumer Behavior: Adapting and Experiencing. New York: Elsevier North Holland, Inc.
- Yavas, U. and E. Kaynak 1981. Packaging: The Past, Present and the Future of a Vital Marketing Function. *Scandinavian Journal of Materials Administration*, 7 (3), 35-53.
- Zaltman, G. 1997. Rethinking Market Research: Putting People Back in. *Journal of Marketing Research*, 34 (4), 424-437.

WWW-pages:

<http://www.munsell.com>, 1.9.2004.

Interviews:

Kota, Tuomas. Designer. Advertising agency Taivas. 8.1.2003, 12.00-14.00. Helsinki.



## APPENDIX 1: Previous studies on colours

The current study refers to the following colour studies. The studies are published in marketing journals or they have marketing implications. The emphasis in the table is to point out those findings or conclusions which are related to the current study.

Table 14. Previous studies on colours

Authors Year	Focus Context	Main findings Conclusions	Notion of colours		
			The use of specific colours	The effect of coloured vs. black-and-white ads	The effect of specific colours
Gorn et al. 2004	Time perception/ Internet	Colours have an impact on relaxation and consequently on time perception.			x
Babin et al. 2003	Atmospheric/ Retail store	Colours have an impact on patronage behaviour and shopping intentions, for example.			x
Mandel and Johnson 2002	Atmospheric/ Internet	Colours have an impact on choice behaviour on the internet.			x
Kaufman- Scarborough 2001	Colour-deficient consumers/ Advertisements	Colours have an effect on readability.	x		
Garber et al. 2000a	Package	Colours have an impact on brand identification. Colours attract attention. Colours communicate.			x
Garber et al. 2000b	Food	Consumers use colours for identification. Colours have an impact on the perception of flavour. Colours communicate.			x
Madden et al. 2000	Cultural context	Colour associations and preferences are country specific as well as universal.			x
Grossman and Wisnblit 1999	Associative learning/ methodology	The study suggests associative learning as a method to be used when colour associations to products are created or changed. <i>Note: lacks empirical data</i>			x
Grimes and Doole 1998	Branding	Colour perceptions are universal. Colours communicate brand identity and awareness, and only slightly brand image.			x
Gorn et al. 1997	Advertisement	Colours have an impact on feelings, which in turn influences attitudes toward the brand, for example.			x

Authors Year	Focus Context	Main findings Conclusions	Notion of colours		
			The use of specific colours	The effect of coloured vs. black-and-white ads	The effect of specific colours
Schoorman and Robben 1997	Package	Colours attract attention. A new package attracts attention when it deviates from other packages in a product class. A new package may not be accepted by consumers when it deviates from other packages.			x
Kirmani 1997	Advertisement	Colours were found to have a positive impact on perceived brand quality when the advertisement was not repeated often, whereas black and white have the same impact when the advertisement was repeated often.		x	
Meyers- Levy and Peracchio 1995	Advertisement	Coloured advertisements are claimed to be justified when the consumer is less motivated to process advertisements. The use of black and white advertisements is claimed to be justified when the consumer is motivated to process advertisements.		x	
Plasschaert and Floet 1995	Package/ methodology	The study suggests a new methodology to researching colours on packages, i.e. it combines semiotics and computer image manipulation. <i>Note: an limited empirical discussion<sup>38</sup></i>			x
Chattopad- hyay et al. 1994	Advertisement	Work in progress. <i>Note: an abstract, i.e. a limited empirical discussion<sup>39</sup></i>			x
Gordon et al. 1994	Package	Colours on packages communicate the brand. Colours have an impact on brand evaluations and brand choices.			x
Greer and Lohtia 1994	Mail survey	Colours were not found to have an impact on response rates.			x
Huang 1993	Advertisement	The use of colours differs between two studied nations.	x		

<sup>38</sup> The study refers to consumer data; however, a proper description of the empirical study is lacking.

<sup>39</sup> The study is in progress and involves consumer data; however, a thorough description of the empirical study is lacking.

Authors Year	Focus Context	Main findings Conclusions	Notion of colours		
			The use of specific colours	The effect of coloured vs. black-and-white ads	The effect of specific colours
Belizzi and Hite 1992	Retail store	Colours have an impact on purchase intentions. Colours have an affective impact rather than an arousal effect. Colours communicate.			x
Chamblee and Sandler 1992	Advertisement	Colours attract attention and evoke interest. Colours influence preferences toward advertisements. <i>Note: Lacks consumer data</i>		x	
Kimle and Fiore 1992	Advertisement	Colours attract attention. The study supports the use of colours instead of black and white in advertisements.		x	
Grønhaug et al. 1991	Advertisement	Colours have an effect on the recognition of advertisements.			x
Jacobs et al. 1991	Cultural context	Colour associations and preferences are country specific as well as universal.			x
Lee and Barnes 1990	Advertisement	Colour preferences connected with race were utilized in advertisements, but colour preferences connected with gender were not. <i>Note: lacks consumer data</i>	x		
Middle-stadt 1990	Background/ Pen	Background colours were found to have an impact on attitudes toward buying the product. Colours communicate.			x
Caudill 1986	In a marketing context in general	The study has a normative purpose concerning the use and impact of colours. <i>Note: lacks empirical data</i>			x
Hoyer et al. 1986	Advertisement	The study supports the use of colours instead of black and white on advertisements. <i>Note: an abstract, i.e. a limited empirical discussion</i> <sup>40</sup>		x	
Kojina et al. 1986	Package	Design and colour preferences were not found to be related to each other. Preferences regarding colours may have an impact on brand choices. Consumers may accept only a few colours on package.			x

<sup>40</sup> The study is completed and involves consumer data; however, a thorough description of the empirical study is lacking.

Authors Year	Focus Context	Main findings Conclusions	Notion of colours		
			The use of specific colours	The effect of coloured vs. black-and-white ads	The effect of specific colours
Schindler 1986	Advertisement	Colours have an impact on readability.	x		
Belizzi et al. 1983	Retail store	Colours can physically attract a consumer into a store. Colours have an impact on store image. Colours communicate.			x
Sparkman and Austin 1980	Advertisement	The study supports the use of colours instead of black and white in advertisements. Colours were found to have a positive effect on product sales.		x	
Peterson 1977	Food	Colours had an a greater impact on perceptions than price and nutritional information.			x

## APPENDIX 2: Previous studies on packages

The current study refers to the following packaging studies. The studies are published in marketing journals or they have marketing implications. The emphasis in the table is to point out those findings or conclusions which are related to the current study.

*Table 15. Previous studies on packages*

<b>Authors Year</b>	<b>Focus/context</b>	<b>Main findings/conclusions</b>	<b>Notion of colours</b>
Underwood and Klein 2002	Pictures and communication and attitudes	Pictures on packages communicate the brand and the product, and may change brand beliefs.	No
Underwood et al. 2001	Pictures and attention	Pictures on packages attract attention in low-familiarity brands (private-label brands). The impact of pictures was found to be related to product class.	No
Bone and Corey 2000	Ethical issues	Ethically interested consumers, packaging professionals, and brand managers perceived differently ethical issues related to packaging.	No
Garber et al. 2000a	New packages and consumer choices	Consumers identify more easily with a new package that is similar to the original. A new package dissimilar from the original package attracts attention. Consumers prefer a new package that conveys meaning that is similar to the meaning conveyed by the original package.	Yes
Rettie and Brewer 2000	Verbal signs and pictures and recall	Verbal signs on right-hand and non-pictures on left -hand side on packages improve brand recall.	No
Sorvali 2000	Appearance	Packages consist of various signs. <i>Note: lacks consumer data</i> <i>Note: a limited empirical discussion</i> <sup>41</sup>	No
Goldberg et al. 1999	Appearance and attention	Attention to verbal signs may be more effective on plain packages than regular. The appearances of packages may also have an impact on how verbal signs are recalled. <i>Note: an abstract, i.e. a limited empirical discussion</i> <sup>42</sup>	No

<sup>41</sup> A proper description of the empirical study is lacking.

<sup>42</sup> The study is completed and involves consumer data; however, a thorough description of the empirical study is lacking.

Authors Year	Focus/context	Main findings/conclusions	Notion of colours
Underwood 1999	Packages and brand identity	Packages communicate and they have an impact on how consumers create brand identity. <i>Note: an abstract, i.e. an incomplete empirical discussion</i>	No
Underwood and Ozanne 1998	Design and communication	Truthfulness, sincerity and comprehension, for example, are norms to achieve effective package communication. <i>Note: an incomplete empirical discussion</i>	No
Polonsky et al. 1998	Ecological issues	Environmental claims on packages were considered to be misleading and inaccurate.	No
Schoorman and Robben 1997	New packages and attention, communication and choice behaviour	Colours attract attention. A new package attracts attention when it is dissimilar from other packages in a product class. A new package may not be accepted by consumers when it is dissimilar from other packages.	Yes
Bech-Larsen 1996	Ecological issues	The environmental characteristics of packages have only a slight impact on purchasing decision.	No
Conolly and Davison 1996	Brand design	Brand design has an impact on consumer choices. <i>Note: an incomplete empirical discussion<sup>43</sup></i>	No
Wansink 1996	Package size and consumption behaviour	Large packages encourage more use than small packages, particularly when the price per unit gets smaller.	No
Garber 1995	Appearance and attention and choice	Work in progress	No
Klapisch 1995	Design and communication	Packages communicate meaning on three levels: functional (e.g. through signs communicating that the package is waterproof), anthropological (e.g. through signs suggesting healthiness) and marketing levels (e.g. through signs indicating how the brand differs from other brands). <i>Note: Lacks consumer data</i>	No
Plasschaert and Floet 1995	Methodological issue	The study suggests a new methodology to researching colours on packages, i.e. it combines semiotics and computer image manipulation. <i>Note: an incomplete empirical discussion<sup>44</sup></i>	Yes
Gordon et al. 1994	Colours and communication and choice behaviour	Colours on packages communicate the brand and have an impact on brand evaluations and brand choices.	Yes
Hall 1993	Design and brand identity	Design has an impact on brand identity. <i>Note: Lacks consumer data</i>	No
Homer and Gauntt 1992	Verbal signs and pictures	The package design was found to have an impact on brand attitudes, attitudes toward the package, and purchase intentions.	No

<sup>43</sup> The study refers to consumer data; however, a proper description of the empirical study is lacking.

<sup>44</sup> The study refers to consumer data; however, a proper description of the empirical study is lacking.

<b>Authors Year</b>	<b>Focus/context</b>	<b>Main findings/conclusions</b>	<b>Notion of colours</b>
Kojina et al. 1986	Colours/ patterns and preferences/ choice behaviour	Design and patter preferences were found to be related to each other whereas design and colour preferences were not. Preferences regarding colours and patterns may have an impact on brand choices. Consumers may accept only a few colours on package.	Yes
Rigaux- Bricmont 1981	Brand name and communication	Brand name was found to have an impact on the perception of the brand quality.	No
Yavas and Kaynak 1981	The role of packages	A discussion of the changed role of packages by discussing the past, the present, and the future of packages from a marketing point of view. <i>Note: Lacks consumer data</i>	No
McDaniel and Baker 1977	Package material and communication	The package material was found to have an impact on product preferences and communicating the product.	No
Granger and Billson 1972	Package size and price	Consumers prefer larger sizes of packages when the price per unit gets smaller.	No
Gardner 1967	Communication	A discussion on communication concerning verbal and non-verbal signs. <i>Note: Lacks consumer data</i>	No
Hayhurst 1965	The role of packages	A discussion concerning the attitudes on packaging of managements. <i>Note: Lacks consumer data</i>	No
Lincoln 1965	The role of packages	A discussion on brand identification through packages. <i>Note: Lacks consumer data</i>	No

### APPENDIX 3: Previous semiotic studies on packages and design issues

The current study refers to the following studies on packaging and design issues that apply a semiotic approach. The emphasis is to show how the studies apply the semiotic approach.

*Table 16. Previous semiotic studies on packages and design issues*

<b>Authors Year</b>	<b>Focus/context</b>	<b>The semiotic approach</b>	<b>Notion of colours</b>
Heilbrunn 1997	Examination of the communicative function of logos.	Analysis of logos based on semiosis, and semantics by Peirce. Discussion on the function of logos by Jacobson.	yes
Vihma 1995	Analysis of four design products.	The discussion is based on the semantics by Peirce.	yes
Klapisch 1995	Analysis of feminine product packaging: Napkins and tampons.	Discussion on connotative meaning based on non-verbal signs.	yes
Solomon 1988	Analysis of car design.	Discussion on design issues based on the communicative functions of signs defined by Jacobson.	yes
Sherry and Camargo 1987	Analysis of beverage can labels.	Discussion on meaning on two levels based on verbal signs.	no
Kawama 1987	Analysis of the design process of word-processors.	Discussion on the design process based on iconic, indexical, and symbolic inferences.	yes
Hoshino 1987	Exemplification of the product conceptualisation of word-processors.	Suggestion of a semiotic marketing –method based on pragmatics by Peirce and levels of meaning by Barthes and the elements of meaning by de Saussure.	no
Kawama 1985	Analysis of international signs.	Suggestion of a communication model based on semiosis and semantics by Peirce.	no



## APPENDIX 4: Perspectives on communication studies

*Table 17. Perspectives on communication studies*  
(Krone et al. 1987:19)

	<b>Focus</b>	<b>Basic issue</b>	<b>Main interest</b>
<b>Mechanistic</b>	Process	Message transmission from person A to person B.	The focus is on the channel that links the persons.
<b>System-interaction</b>	Pattern	The interest is on external behaviour.	The focus is on finding patterns of behaviour.
<b>Psychological</b>	Receiver	The characteristics of the persons.	The focus is on how the characteristics of the persons involved affect the communication.
<b>Interpretive-symbolic</b>	Receiver	Everybody creates their own social reality.	The focus is to find shared meanings. Emphasises role-taking in creating shared meanings.

## APPENDIX 5: Evaluation of eight product classes

Table 18. Evaluation of eight product classes

	Leading ingredient	Tastes	Cues of the taste on	Size of the packages (e.g. amount of tablets)	Package colours	Comments - (limitations) + ++ +++ (benefits)
<b>C-vitamins</b>	ident	2	Yes	comp	comp	The appearances of the packages are comparable. - Two tastes: orange related to yellow, lemon related to yellow and green. ++
<b>Painkillers</b>	ident	No	-	ident	diff	The appearances of the packages differ. +++
<b>Magnesium</b>	ident	3-4	Yes	ident	comp	Expensive product. - Appearances of the packages differed little. Colours related iconically to taste. -
<b>Nicotine gum</b>	ident	4-5	Yes	very diff	comp	Expensive product. - The packages differed little. Colours not related to taste. For example, taste of fruit on colourless package. +++
<b>Medicine against heartburn</b>	ident	No	-	ident	diff	The appearances of the packages differ. +++
<b>Cough mixture</b>	diff	4	No	150-250 ml	diff	Colour not related to taste. +++ No obvious cues of the taste. -
<b>Flu medicine</b>	diff	4-5	Yes	comp	diff	Lemon-green. Eucalyptus-yellow. +
<b>Medicine against sore throats</b>	diff	6	Yes	comp	diff	Blue mint as well as menthol. Yellow lemon and taste aroma. +++ Cues of the taste. +++

Abbreviations: identical (ident), comparable (comp), different (diff).

## APPENDIX 6: Stimuli of the preliminary conjoint study

*Table 19. Combinations of levels of attributes, i.e. preliminary stimuli in product class 1 (painkillers)*

Profile card number	Colour	Shape	Price (€)	Producer
1.	green	portrait	2.15	unknown local producer
2.	red	oval	3.50	known local producer
3.	blue	landscape	2.15	known local producer
4.	yellow	landscape	2.15	unknown foreign producer
5.	blue	portrait	3.50	unknown foreign producer
6.	yellow	landscape	3.50	unknown local producer
7.	green	landscape	2.15	known local producer
8.	blue	landscape	2.45	known foreign producer
9.	red	landscape	2.15	unknown foreign producer
10.	green	landscape	3.50	known foreign producer
11.	yellow	portrait	2.45	known local producer
12.	red	landscape	2.45	unknown local producer
13.	red	portrait	2.15	unknown foreign producer
14.	green	oval	2.45	unknown foreign producer
15.	blue	oval	2.15	unknown local producer
16.	yellow	oval	2.15	known foreign producer

*Table 20. Combinations of levels of attributes, i.e. preliminary stimuli in product class 2 (medicine against sore throats)*

Profile card number	Colour	Shape	Price (€)	Producer	Taste
1.	green	portrait	3.60	unknown local producer	menthol
2.	green	landscape	3.25	known foreign producer	mint
3.	blue	landscape	3.60	known foreign producer	honey and lemon
4.	yellow	oval	4.45	known foreign producer	menthol
5.	blue	landscape	3.25	known local producer	menthol
6.	blue	oval	3.25	unknown local producer	neutral
7.	yellow	landscape	3.25	unknown local producer	mint
8.	blue	portrait	4.45	unknown foreign producer	mint
9.	red	landscape	4.45	unknown local producer	honey and lemon
10.	green	landscape	4.45	known local producer	neutral
11.	yellow	portrait	3.25	known local producer	honey and lemon
12.	green	oval	3.25	unknown foreign producer	honey and lemon
13.	red	portrait	3.25	known foreign producer	neutral
14.	yellow	landscape	3.60	unknown foreign producer	neutral
15.	red	landscape	3.25	unknown foreign producer	menthol
16.	red	oval	3.60	known local producer	mint

## APPENDIX 7: Stimuli of the final conjoint study

*Table 21. Combinations of levels of attributes, i.e. final stimuli in product class 1 (painkillers)*

Profile card number	Colour	Shape	Font	Producer
1.	green	landscape	font 1	known foreign producer
2.	red	landscape	font 1	known local producer
3.	yellow	portrait	font 1	unknown local producer
4.	blue	square	font 1	unknown foreign producer
5.	red	portrait	font 1	unknown foreign producer
6.	yellow	landscape	font 1	known foreign producer
7.	green	square	font 1	unknown local producer
8.	red	landscape	font 3	unknown local producer
9.	blue	portrait	font 3	known foreign producer
10.	yellow	square	font 3	known local producer
11.	yellow	landscape	font 2	unknown foreign producer
12.	blue	landscape	font 1	known local producer
13.	green	landscape	font 3	unknown foreign producer
14.	blue	landscape	font 2	unknown local producer
15.	red	square	font 2	known foreign producer
16.	green	portrait	font 2	known local producer

*Table 22. Combinations of levels of attributes, i.e. final stimuli in product class 2 (medicine against sore throats)*

Profile card number	Colour	Shape	Font	Producer	Taste
1.	yellow	portrait	font 1	known foreign producer	neutral
2.	blue	square	font 2	unknown local producer	neutral
3.	red	portrait	font 3	unknown local producer	menthol
4.	green	landscape	font 3	unknown foreign producer	neutral
5.	blue	landscape	font 1	known local producer	menthol
6.	yellow	square	font 3	known local producer	mint
7.	red	landscape	font 2	known foreign producer	mint
8.	red	square	font 1	unknown foreign producer	honey and lemon
9.	yellow	landscape	font 2	unknown foreign producer	menthol
10.	red	landscape	font 1	known local producer	neutral
11.	green	square	font 1	known foreign producer	menthol
12.	blue	landscape	font 3	known foreign producer	honey and lemon
13.	green	landscape	font 1	unknown local producer	mint
14.	green	portrait	font 2	known local producer	honey and lemon
15.	yellow	landscape	font 1	unknown local producer	honey and lemon
16.	blue	portrait	font 1	unknown foreign producer	mint

**APPENDIX 8: Profile cards of the study**

## APPENDIX 9: Estimated relative importance on an individual level

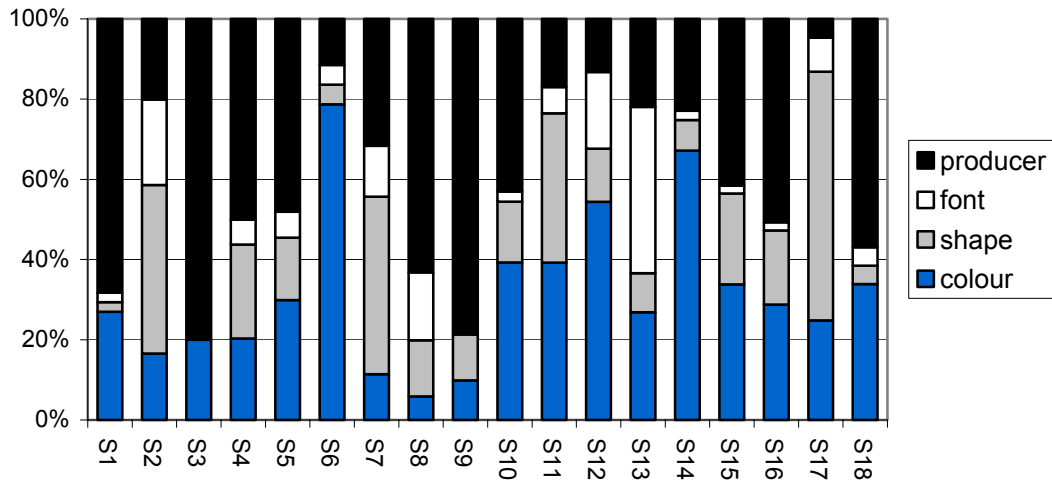


Figure 42. Estim. relative importance on an individual level in product class 1 (painkillers)

Table 23. Kendall's tau on an individual level for product class 1

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18
0.98	0.90	1.00	0.93	0.85	0.92	0.95	0.96	0.96	0.99	0.98	0.90	0.85	1.00	0.81	0.98	0.93	0.97

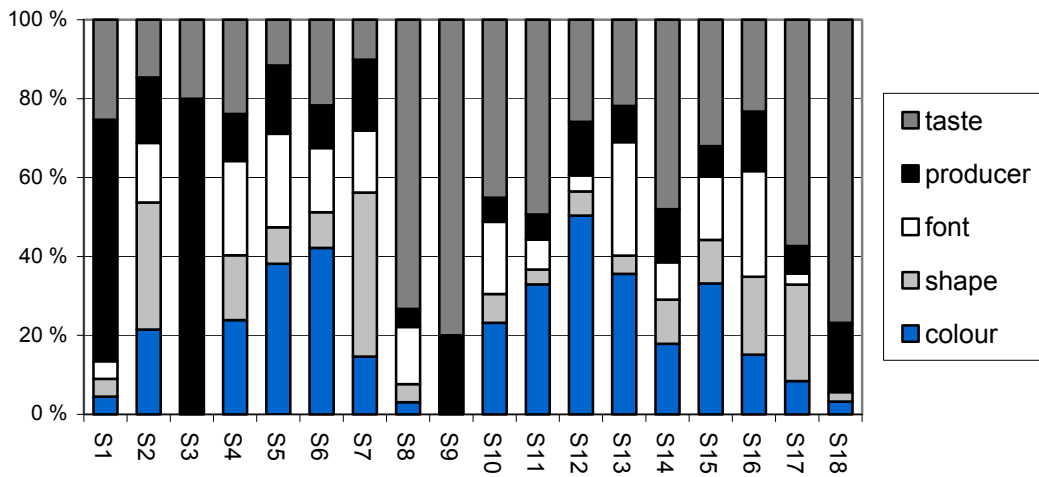


Figure 43. Estim. relative importance on an individual level in product class 2 (medicine against sore throats)

Table 24. Kendall's tau on an individual level for product class 2

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18
0.98	0.89	1.00	0.53	0.83	0.88	0.99	1.00	1.00	0.93	1.00	0.99	0.81	0.93	0.93	0.80	0.99	1.00

## APPENDIX 10: Estimated part-worths for colour on an individual level

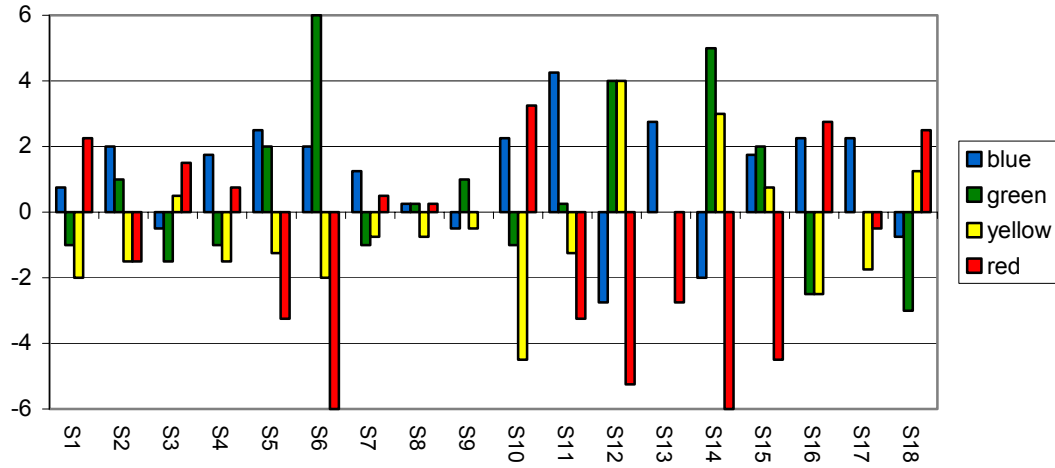


Figure 44. Estimated part-worths for colour on an individual level in product class 1 (painkillers)

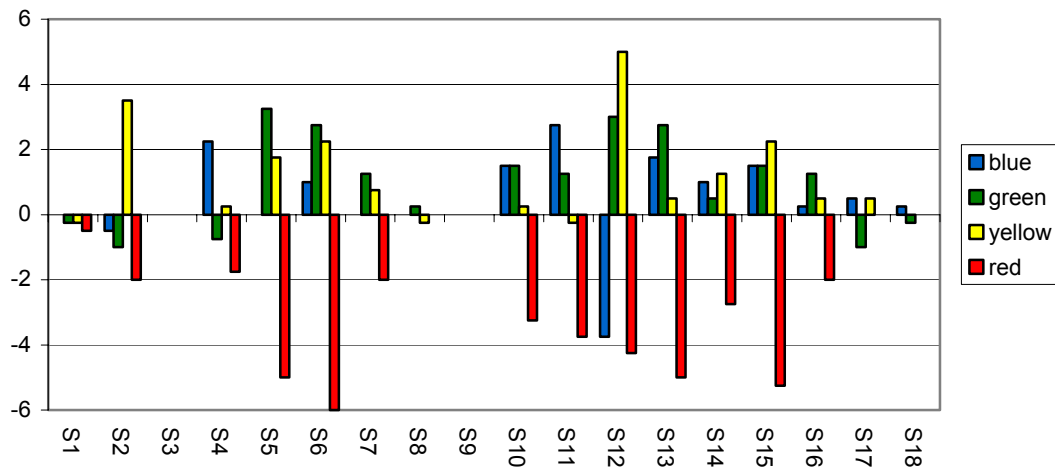


Figure 45. Estimated part-worths for colour on an individual level in product class 2 (medicine against sore throats)

## APPENDIX 11: Two translated interviews

Below is two examples of transcribed interviews. Rest of the interviews are available at the author of the present study. It is important to note that also notes were taking during the interviews in order to be able to relate the comments to the profile card and level of attribute in question. This was an important task particularly if the particular profile card that the subject was commented on was not mentioned clearly by the subject. Thus, during analysis the transcribed interviews were compared to the ranking orders and the notes taken.

### SUBJECT NUMBER 15, 19.5.2003, Painkillers

This is an example of an interview made concerning product class 1. Questions were made although the subject was quite talkative.

H stands for Hannele (the interviewer)

S stands for subject

#### **H: First the scenario was presented.**

R: Well, I think that the first criterion is a known local producer, and the reason for this is that I trust Finnish producers more than I trust foreign ones. But I do not know how it usually is with painkillers in Finland. I am not so acquainted with this, but, in some way, I have the feeling that local producers are more trustworthy. At least you know what you are buying. So I think I will choose the local first, I believe the other ones are foreign. Shall I choose one of these?

**H: Yes, please rank them in the order according to which you would pick them; which one you would pick first, second, third etc.**

R: Okay, so there is an unknown local?

**H: Yes, there is known and unknown, local and foreign.**

S: Yes, this was difficult. I think I would pick... If I think of known local, I think of Orion as the first one, so let us say that the known one is Orion. I almost think that I would choose this blue one first.

**H: Why?**

S: I do not know. I think this blue colour is... Blue is my favourite colour, but that has got nothing to do with it. I do not know if this colour makes the painkiller more reliable. This yellow one is too vivid. It does not remind me of painkillers, maybe more of vitamins, but not painkillers. And this red colour, it has a totally negative impact on the package for painkillers.

**H: Why do you think this is the case?**

S: I do not know. It reminds me of blood. Not that there is anything negative about that, but I do not know. Green also reminds me of vitamins that I would buy from some kind of a natural market. I think that this blue one with large typography is the one that I would choose, and it is a known local, but I could also choose an unknown local producer. Still, I trust this more than I trust known and unknown foreign producers. This was my first choice. Next local... This is difficult, because I think that I have the same motivation for each. The next one would be the unknown local, and also here I would choose the blue one, so I guess I have to...



**H: No, this is not a test of logic. You just have to think that these are the ones that are left and the first one does not exist.**

S: Okay, then I would pick, hmm, this red one is the last one I would pick. In that case it would be the green and known one. I would trust this known producer a little bit more. This green one with small typology, but that does not really matter. And the next one would be the yellow one and I almost think that I would choose this landscape-shaped one. It fits better in my bag. I almost think I would take this known foreign producer. It has probably again something to do with branding, that you recognise the producer. Otherwise I do not think that I would ever choose a foreign producer if I can choose from local ones, but if I recognise it, I think I would trust it. In that case I would pick it.

**H: Could you rank them?**

S: Yes: And then... now I only have known local. Now I would pick an unknown local. This blue landscape-shaped package.

**H: Why this one?**

S: Because it is landscape shaped and it is local; even though it is unknown, it is still Finnish.

**H: But why this blue landscape shaped? There are other unknown local.**

S: Somehow I think that this blue colour appeals to me and this colour suits painkillers well.

**H: Why do you think that?**

S: I think that it in some way is neutral, it does not remind me of vitamins or other tablets or illnesses. I would also choose this green one.

**H: Why? This green landscape shaped?**

S: Yes, this shape is... (?)... like health tablets or vitamins. The second best colour. In that case I would take this known foreign producer. Do you want me to rank them all?

**H: Yes, rank them all.**

S: Okay. Then I would choose this blue one again, which is portrait shaped. And it is a known foreign producer.

**H: Why would you choose that one?**

S: The colour again, but I liked the package better when it was landscape shaped. This one reminds me of a box of candies. Then... I have not chosen a single red one, but I will choose those last because they remind me of illnesses or blood. They give a more negative image. Then we have two yellow ones of which one is one known and one is one unknown local. I think I would choose this yellow square shaped with large typology. It is a known local. And the reason why I would choose this is that it is a known local producer. Then I would choose this other yellow one, which is unknown local, and for the same reason, i.e. it is a local producer. Then we have one yellow, one blue, two green and the red ones left. Then I would choose this green square shaped with large typology, this 'painkiller'. It is an unknown local producer, and again because it is a local producer. And then I would actually rather choose this green landscape shaped than this blue square shaped. They are both unknown foreign, but I like this shape better, it is more convenient. You can have it in your bag. Maybe I am more used to seeing painkillers packaged in these kind of landscape-shaped packages. I would choose that one. Then, well now I have four red ones, one blue and a yellow one left. Among the red ones we have local. This is difficult, because if I went to the pharmacy and saw this colour, I would not choose it, but because it is local and my other choices are foreign, which both are unknown, I might perhaps give in and buy these local ones.

**H: That is the known local?**

S: Yes. Maybe I would notice this one on the shelf in the pharmacy because it is red, but in some way I associate it with something else than ordinary headache and toothache. Then we only have one known foreign producer left. The other ones are unknown, both local and foreign. Now it gets just more difficult, because now we have the red package again and it is the only local one left, but it is unknown. Still I trust it, because it is a local producer.

**H: So it was unknown local.**

S: Yes. Then I would choose this one – if I had to choose between these four – in that case I would take this yellow one.

**H: Unknown foreign, is that right?**

S: Yes, I think it is this shape of the package and even if I do not associate this yellow colour with headache or toothache or a cold, I could imagine that I feel well again after having taken (the medicine) from such a vivid package. Hmm, oddly enough I have two red ones and a blue one left, and of these I would choose this red one. It is also the package (which is the reason). It is unknown foreign.

**H: The shape of the package?**

S: Yes. Then I have two left, one blue and one red and both are foreign. The red one is known and the blue is unknown.

**H: This previous one you would have chosen because of the shape of the package. Is it something special with this square shape?**

S: I am just thinking that if I had it in my bag it would take up a lot of space, or it takes up more space. For some strange reason, maybe it is not true, but I think that this landscape shape is more convenient. Now I have one known foreign and one unknown in front of me. I would choose this known foreign, which is red, and the reason for this is that it is known. You know who the producer is, and maybe you trust it more than you would trust an unknown foreign, even though the shape of the package is more appealing.

**H: Was it difficult?**

S: This? Yes, I think this was difficult. Especially when all the brands had the same prices.

## **SUBJECT NUMBER 2, 10.4.2003, Medicine against sore throats**

This is an example of a talkative subject, who did not need much encouragement during the interviews to express her motivations.

H stands for Hannele (the interviewer)

S stands for subject

### **H: SCENARIO**

S: Am I supposed to rank them all?

**H: Yes, rank them all.**

S: Shall I also express spontaneous comments and thoughts?

**H: Yes, absolutely. Just as you like. You can do as you like.**

S: Immediately, the first thing that I thought was that either the blue or the yellow package because it symbolises these Vicks-tablets, they are tablets for sore throat. And you can get them both in blue and yellow, and the yellow is honey and so on. But then if I should try to think that I have a really very sore throat, maybe the taste wouldn't matter. My choice is not influenced by how well-known the producer is. Partly, I do think that I would prefer local, but if the sore throat is rather acute, it doesn't really matter to me.

I think that my first... This one would be my first. Then I don't like this text so much, it doesn't look very trustworthy, but then again... This text I like the most. I think it looks trustworthy. It's the same as this one, I think... But then, I think that the combination of lemon and this form makes it look as a medicine for sore throat. It would be my first choice.

I was thinking of it first, but I don't think that mint fits so well with yellow, so I would become so sceptical that I wouldn't take it. I think that mint is blue. I'll take this as the second. But now I actually didn't look at all at whom had produced it, but instead only if it could help me with my throat. And then it has a neutral taste, so in that case the colour of the package doesn't matter.

But now when I'm looking at everything for a longer time, I get really curious about this one. It is somehow like it would help. And it is a local producer, so in some respect I want to support the domestic. So it would come as my third choice.

And if I buy foreign, I think that it's better if I recognise it. But if it's the completely same medicine, it shouldn't influence my choice. So this one would be the fourth. I like this form. I don't think that this square shaped form is suitable for medicine for sore throat, it's like a big box of candy, it could be salt liquorice. Even though you can't buy salt liquorice in packages like this, as far as I know. But I think that medicine always comes in this form, or in this.

This one comes in fifth position. Because it's menthol and I think of it as blue, the same as with mint. I honestly don't know what the difference between mint and menthol is, so that doesn't influence my decision. It seems good. You can trust it. If it would be painkillers for headache, I wouldn't have chosen this one at all, because it doesn't seem to be so pain relieving, but when it concerns a sore throat, I think it's a totally different issue. A headache is in some way so much worse, so even if my throat would be terribly sore, it wouldn't be as terrible. That's why you want it to taste good. You have it in your mouth, near the throat. And it looks trustworthy, or the package does.

And then this one, no I changed my mind. This one isn't at all... oh yes, it is, it's this one after all. I hesitated because I thought that the producer should be taken into account, but since I know that it's the same medicine and the same working effect, it won't influence my choice. In that case I rather take the one that I spontaneously like the most. It's not so important for me to support local companies. I trust all

companies pretty "blindly", and also the foreign ones. Because a sore throat is such a common thing. I would perhaps think more if it would be about a more serious illness.

Then this one. I like the text. The form of the text and the typology.

### **H: Why?**

S: If you compare these two, this one is more media-like in some way. It's not as strict. It's more like a text that would be on the cover of a journal. This again is more connected with doctors.

Then I'll take this one. It has a typology that I like. It's very difficult for me to think of these as being medicines. I don't know what I'm thinking of when I look at this typology. I think that it's a company that is very visible and that has such a typology in its logo, and that hasn't got anything to do with medicine, but I don't know what company it is.

Then this one, because honey and lemon is something like this colour. Even though I mostly think it's yellow, but lemon is almost like lime and lime is of this colour.

Then this one. Because it's like mint and I think it's a little bit green, too.

And this is the one that I like the least. If I had to choose the one I like the best of these, I would choose this one. It looks more professional, this typology. I don't like these other ones because, partly, honey and lemon don't fit with blue and mint doesn't fit with red, and then I don't like these forms at all. Actually I think of cosmetics because I rather often buy a type of powder which is in a package of this size, and mini discs. I don't have a mini disc player, but I could imagine that they are sold in packages like this.

Then this one, because I like both the typology and the taste, but still not the neutral one, which will be the next one.

This one just looks more professional. I would take that one.

And when I have these two left, I have difficulties in choosing which one I would like more, but perhaps I think that honey and lemon are a bit more red than mint. On the other hand there may be red peppermint candy... if that is mint or what? Mint? I don't know what the difference is.

But I think that this one comes first, and then finally this one.

So actually the producer doesn't matter at all in my choices. Maybe sometimes if there would be two that would seem to be equally good. But it hasn't influenced my choice in hardly any way.

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